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**UK METEOROLOGICAL OFFICE
GLOBAL DATA MONITORING REPORT**

January 2001

**Data Assimilation
Meteorological Office
London Rd
Bracknell
Berkshire
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1. Introduction

As the WMO-appointed lead centre for monitoring surface marine data, the U.K. Meteorological Office produces monthly statistics on the quality of these observations received at RSMC Bracknell. This report includes this information along with statistics for most other types of data. The figures and tables contained herein are presented according to the agreed standards for the exchange of monitoring results.

The report is based on data received at the UK Meteorological Office Headquarters, Bracknell in time for inclusion into the appropriate analysis (the current cut-off time is approximately 7.2 hours after each analysis time). The evaluation of data quality is based on comparison with the appropriate 6-hour global model forecast (background field). Generally, the background field is of high quality except in data sparse areas, tropical regions and areas close to steep orography where care should be taken in interpreting the statistics shown.

Comments or queries on the report are welcome and should be addressed to:-

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2 Global Data Monitoring Statistics

Ships, Fixed buoys, Platforms and Drifting buoys observations

TABLES 1-2 contain lists of the stations which are considered to have returned suspect observations of pressure, windspeed, wind direction or temperature, as appropriate, during the month. The criteria for quality control are given on the header page for each table.

Figures 1 and 2 show 10 degree lat/long box average numbers of SHIP/SYNOP and DRIFTER observations received per day throughout the month at Bracknell and assimilated into model runs. Only data from the main hours of 00 UTC, 06 UTC, 12UTC and 18 UTC are included. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

Synop Observations

Table 3 contains a list of stations which are considered to have returned suspect observations of Pressure during the month. The criteria for quality control are given in the header page. The reporting practice of each station is included in the list of statistics.

At the UK Met. Office, we monitor SYNOP pressure after it has been interpolated to our Global NWP Model's surface height. For most synoptic stations (about 75%), the surface pressure (at the model surface) is calculated from the reported station-level pressure, or, if this is not available, the height of a standard pressure-level (e.g. 850 hPa or 700 hPa). If neither of these are available, or if the reported station-level pressure is deemed unreliable, the reported mean sea-level pressure is used (about 25% of SYNOPs).

Aircraft observations

Tables 4A (300-150 hPa) and 4B (1000-301 hPa) contain lists of statistics calculated from data received from all airline carriers.

Figures 3A (300-150 hPa) and 3B (1000-301 hPa) show 10 degree lat/long box average numbers of aircraft reports in AIREP/AMDAR code (including AIREP, ACAR, AMDAR, ASDAR and ADS) received per day throughout the month at Bracknell and assimilated into model runs. Observations with a vector wind difference (compared with the model background field) of $>60 \text{ m s}^{-1}$ have been excluded. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5 , then 0 is plotted.

Figures 4A-7A (300-150 hPa) and 4B-7B (1000-301 hPa) show wind statistics for AIREP/ASDAR in AIREP/AMDAR code (including AIREP, ACAR, AMDAR, ASDAR and ADS). Observations with a vector wind difference $> 60 \text{ m s}^{-1}$ have been excluded. Statistics have not been calculated for 10 degree lat/long boxes containing <31 observations.

Figure Parameter

- 4 Mean wind vectors
- 5 Mean observation - background wind vector
- 6 Mean observation-background speed (m s^{-1})
- 7 RMS observation-background vector (m s^{-1})

Radiosonde Observations

TABLES 5-7 contain lists of the stations which are considered to have returned suspect observations of geopotential height, vector wind or wind direction, as appropriate, during the month. The criteria for quality control are given on the header page for each table.

Figures 8 and 9 show 10 degree lat/long box average numbers of TEMP 500 hPa GEOPOTENTIAL HEIGHT and TEMP/PILOT 300 hPa WIND observations received per day throughout the month at Bracknell and assimilated into model runs. Data from all hours are included. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5 , then 0 is plotted.

APPENDIX I shows details of the gross error limits used in TABLES 5 and 6 and the weights used in the RMS values in TABLE 5.

Satellite Observations

Figures 10-24 show satellite wind statistics for all geostationary satellites. All plots other than **AVAILABILITY** show average data where there are > 10 observations in a 10 degree lat/long box.

Figure	Parameter Plotted	Layer (hPa)
10	Availability/average daily number	701-1000
11	Vector mean wind (observed)	701-1000
12	Observation-background vector wind difference	701-1000
13	Mean observation-background speed differences	701-1000
14	RMS observation-background vector difference	701-1000
15	Availability/average daily number	401-700
16	Vector mean wind (observed)	401-700
17	Observation-background vector wind difference	401-700
18	Mean observation-background speed differences	401-700
19	RMS observation-background vector difference	401-700
20	Availability/average daily number	101-400
21	Vector mean wind (observed)	101-400
22	Observation-background vector wind difference	101-400
23	Mean observation-background speed differences	101-400
24	RMS observation-background vector difference	101-400

Figures 25-39 show sounding statistics from the polar orbiting satellite NOAA-15. Figure 25 shows the mean daily number of ATOVS soundings, and figures 26-39 show mean and standard deviation observation-background differences for brightness temperature, for selected channels.

N.B. The sounding data is bias-corrected (and thinned) before being assimilated in the UKMO NWP model.

Figure		Weighting function peak (hPa)
26	Mean	Surface (HIRS8)
27	SD	Surface (HIRS8)
28	Mean	700 (HIRS15)
29	SD	700 (HIRS15)
30	Mean	500-700 (HIRS11)
31	SD	500-700 (HIRS11)
32	Mean	400 (HIRS4)
33	SD	400 (HIRS4)
34	Mean	700 (AMSUA5)
35	SD	700 (AMSUA5)
36	Mean	300 (AMSUA7)
37	SD	300 (AMSUA7)
38	Mean	100 (AMSUA9)
39	RMS	100 (AMSUA9)

3 Composite Observing Systems for the North Atlantic (COSNA)

This section shows statistics for upper air (radiosonde and aircraft) and surface (drifter) data for the North Atlantic area for data received at Bracknell during the month.

TABLE 8 shows quality statistics for **Mean Sea-level Pressure, Windspeed and Wind Direction** received at Bracknell in DRIFTER code during the month for the area 10°N - 80°N, 85°W - 0°W.

TABLE 9 shows quality statistics for **Temperature and Vector Wind** received at Bracknell from aircraft during the month for the area 40°N - 70°N, 60°W - 0°W.

Table 10 - 13 show quality statistics (**Geopotential Height and Windspeed at 100 and 500 hPa**) for all TEMPSHIPS in the area bounded by 0°N - 90°N, 100°W - 40°E and selected TEMP stations within the same area.

Revisions

1. May 95 Monitoring statistics for NOAA-11 removed. Figures 25-27 now show data for NOAA-12
2. May 95 Notes giving details of observations included in wind direction statistics clarified and corrected.
3. August 95 Monitoring statistics for NOAA-14 added with figures 28-30.
4. February 96 Monitoring statistics for GOES-7 have been replaced by statistics for GOES-8 and GOES-9.
5. April 96. 500 km and 120 km SATEMs replaced by 120 km resolution temperature profiles produced locally from the radiances disseminated by NESDIS.
6. February 97 Monitoring statistics for Meteosat 5 have been replaced by statistics for Meteosat 6.
7. Sept 97 Monitoring statistics for NOAA-12 removed. Figures 25-27 now show data for NOAA-11
8. January 1998. Increase in resolution of UKMO global forecast model.
9. April 1998. GOES winds ceased on 2nd March 1998, and were replaced with GOES high resolution winds from 15th.
10. June 1998. Monitoring statistics for Meteosat-6 were replaced by monitoring statistics for Meteosat-7, from 3rd June.
11. June 1998. Corrections in our processing of radiosonde data resulted in a decrease in the number of 500hPa geopotential heights in Figure 8 of about 230 per 24 hours (compared with previous reports), and a small increase in the number of 300hPa winds in Figure 9.
12. July 1998. Meteosat-5 began transmitting winds from 2nd July, at 63 degrees East (over the Indian ocean), and this data is included in the statistics.
13. July 1998. GOES-9 (at 135W) was replaced mid-month by GOES-10 (initially at 105W, moving towards 135W).
14. February 1999. Problems with NOAA-11, and TOVS data ceased to be assimilated from 26 February.
15. March 1999. UKMO introduced 3-D VAR assimilation system on 29 March, and also began assimilating ATOVS data from NOAA-15.
16. May 1999. Included statistics for ATOVS sounding data from NOAA-15.
17. September 1999. Included statistics for high resolution visible winds from Meteosat-5 and Meteosat-7.
18. October 1999. The 3-D VAR assimilation system was upgraded on 19 October, including improvements in the assimilation of ATOVS radiances, use of SSM/I surface wind speed, an improvement in the calculation of surface pressure for SYNOps, and thinning and revision of observation errors of aircraft data.
19. November 1999. High resolution visible winds from Meteosat-5 and Meteosat-7 removed until used operationally.
20. April 2000. Aireps in Table 4 and Figures 3-7 split into ranges 300-150 hPa (A) and 1000-301 hPa (B).
21. September 2000. Corrected an error affecting the mean positions of a minority of buoys in Table 2.

TABLE 1

**MONITORING OF MARINE SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - SHIPS, FIXED BUOYS AND PLATFORMS
MONITORING CENTRE: BRACKNELL
MONTH: January 2001**

Monitoring procedures

Period	:One calendar month.
Data monitored	:Reports from each unique identifier for ships, fixed buoys and platforms.
Standard of comparison	:Background field from UKMO global model.
Observation times	:00, 06, 12, 18 UTC
Elements monitored	:Mean sea level pressure (hPa). :Wind speed (m s^{-1}). :Wind direction (Degrees).

Parameters monitored

:NOBS	:Number of observations received excluding duplicates.
:NGE	:Number of observations with gross errors.
:PGE	:Percentage of observations with gross errors.
:SD	:SD of difference of observations from background values excluding those with gross errors.
:BIAS	:Mean difference of observations from background values excluding those with gross errors. N.B. a positive bias indicates the observation is veered to the background.
:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors.

GROSS ERROR LIMIT :15 hPa (pressure)
:25 m s^{-1} (vector wind)

SELECTION CRITERIA	:NOBS	≥ 20 , and one or more of the following:	
	1. bias	≥ 4 hPa $\geq 5 \text{ m s}^{-1}$ ≥ 30 degrees	(pressure), (wind speed), (direction).
	2. SD	≥ 6 hPa ≥ 80 degrees	(pressure), (direction).
	3. PGE	≥ 25	

N.B. Observations of wind direction are only included in the wind direction statistics if the observed OR background wind speed $> 5 \text{ m s}^{-1}$

IDENTIFIER	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
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MEAN SEA LEVEL PRESSURE

CGDS	ALL	P	SUR	68	33	49	0.8	-1.5	1.7
C6QK	ALL	P	SUR	44	0	0	1.1	5.3	5.4
DGSR	ALL	P	SUR	56	0	0	1.3	-4.1	4.3
ELGG3	ALL	P	SUR	30	0	0	1.2	4.4	4.6
ELML7	ALL	P	SUR	66	20	30	4.7	-3.2	5.7
ELVJ9	ALL	P	SUR	82	0	0	2.4	-4.8	5.4
ELWR	ALL	P	SUR	42	0	0	1.2	-5.4	5.5
ELWR3	ALL	P	SUR	33	0	0	0.9	-4.8	4.9
ELXX4	ALL	P	SUR	31	0	0	0.7	-5.0	5.1
ELYM3	ALL	P	SUR	38	0	0	1.4	-4.4	4.6
KAAC	ALL	P	SUR	22	2	9	3.2	10.4	10.9
LAOW5	ALL	P	SUR	22	0	0	2.2	5.2	5.6
OJAK	ALL	P	SUR	58	2	3	1.6	-4.1	4.4
PCAG	ALL	P	SUR	26	0	0	0.9	-8.7	8.7
P3YR5	ALL	P	SUR	46	0	0	1.5	5.0	5.2
P3YS5	ALL	P	SUR	65	0	0	1.4	4.2	4.4
UAMR	ALL	P	SUR	97	7	7	2.0	-12.1	12.3
UASX	ALL	P	SUR	30	0	0	1.1	7.3	7.4
UBAW	ALL	P	SUR	49	33	67	2.1	0.1	2.1
UBDN	ALL	P	SUR	32	0	0	1.3	5.4	5.6
UCJB	ALL	P	SUR	62	1	2	1.4	-4.7	4.9
UDDE	ALL	P	SUR	77	0	0	1.8	4.7	5.0
UDUK	ALL	P	SUR	67	0	0	1.4	4.7	4.9
UDYG	ALL	P	SUR	111	9	8	3.7	6.4	7.3
UFAA	ALL	P	SUR	31	1	3	1.3	7.9	8.0
UFNH	ALL	P	SUR	53	0	0	2.2	-7.0	7.3
UFNO	ALL	P	SUR	21	0	0	1.7	5.1	5.4
UHLE	ALL	P	SUR	24	1	4	1.0	-10.3	10.4
UHVW	ALL	P	SUR	21	2	10	6.0	4.1	7.3
VCRT	ALL	P	SUR	53	1	2	1.7	-5.6	5.9
VRVI2	ALL	P	SUR	76	0	0	0.9	5.2	5.3
VVGC	ALL	P	SUR	23	0	0	1.3	5.9	6.0
VVML	ALL	P	SUR	21	0	0	1.9	4.0	4.4
3ELQ9	ALL	P	SUR	27	0	0	4.7	-6.3	7.8
3FEA4	ALL	P	SUR	36	0	0	2.7	-4.4	5.2
3FHF8	ALL	P	SUR	21	0	0	0.9	-4.0	4.1
4XGV	ALL	P	SUR	24	1	4	2.6	4.1	4.8
9MCU	ALL	P	SUR	24	0	0	1.6	4.2	4.5
9VRA	ALL	P	SUR	52	0	0	0.8	-5.4	5.5

WIND SPEED

C6JE5	ALL	SPEED	SUR	60	0	0	2.4	-5.3	5.8
DDPH	ALL	SPEED	SUR	21	2	10	8.5	6.3	10.6
DIOB	ALL	SPEED	SUR	41	1	2	7.3	6.6	9.9
DMRX	ALL	SPEED	SUR	34	0	0	6.2	5.7	8.4
DUHN	ALL	SPEED	SUR	39	7	18	8.9	9.4	12.9
ELDT6	ALL	SPEED	SUR	21	0	0	3.2	5.0	6.0
ELVG2	ALL	SPEED	SUR	23	14	61	1.8	4.1	4.5
ELWP8	ALL	SPEED	SUR	24	1	4	4.9	10.2	11.3
ELWZ5	ALL	SPEED	SUR	22	1	5	5.1	6.2	8.0
ELXU2	ALL	SPEED	SUR	27	1	4	3.2	5.6	6.5
JKPS	ALL	SPEED	SUR	101	1	1	4.1	5.5	6.8
KRDB	ALL	SPEED	SUR	33	0	0	3.9	5.1	6.4
LAOW5	ALL	SPEED	SUR	22	0	0	4.4	5.8	7.2
LAVX4	ALL	SPEED	SUR	42	1	2	2.2	6.4	6.8
MSBM4	ALL	SPEED	SUR	24	0	0	1.6	5.5	5.8
OWEN2	ALL	SPEED	SUR	53	1	2	6.3	5.2	8.2
PJIB	ALL	SPEED	SUR	56	0	0	5.5	7.6	9.4
PJOD	ALL	SPEED	SUR	44	0	0	3.9	8.8	9.6
PPSO	ALL	SPEED	SUR	59	0	0	5.7	9.8	11.4
P3RX4	ALL	SPEED	SUR	26	1	4	3.3	13.5	13.9

IDENTIFIER	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
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WIND SPEED

SGAK	ALL	SPEED	SUR	39	1	3	7.1	5.9	9.2
TFYY	ALL	SPEED	SUR	22	1	5	7.8	7.5	10.8
TSMS	ALL	SPEED	SUR	70	0	0	3.6	5.1	6.2
UCJT	ALL	SPEED	SUR	31	0	0	3.4	5.0	6.0
VVJS	ALL	SPEED	SUR	26	0	0	4.0	5.6	6.9
V2PB1	ALL	SPEED	SUR	55	1	2	4.3	9.2	10.1
V7AT9	ALL	SPEED	SUR	43	0	0	3.7	5.0	6.2
WCBP	ALL	SPEED	SUR	28	0	0	5.4	5.6	7.8
ZCAO7	ALL	SPEED	SUR	54	0	0	4.3	6.0	7.4
3FWM4	ALL	SPEED	SUR	50	0	0	2.7	5.5	6.1
3FZM	ALL	SPEED	SUR	30	1	3	4.1	5.5	6.9

WIND DIRECTION

ELVM6	ALL	DIRN.	SUR	254	1	0	93.0	55.3	108.2
ELWJ5	ALL	DIRN.	SUR	24	0	0	36.1	44.3	57.1
FPSS	ALL	DIRN.	SUR	30	0	0	67.8	45.6	81.7
62112	ALL	DIRN.	SUR	507	94	19	113.7	4.3	113.8
62131	ALL	DIRN.	SUR	56	0	0	18.7	30.0	35.3
63113	ALL	DIRN.	SUR	182	0	0	21.0	-68.4	71.5

FIGURE 1

MAIN HOURS ONLY

10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS

GLOBAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS = 21594

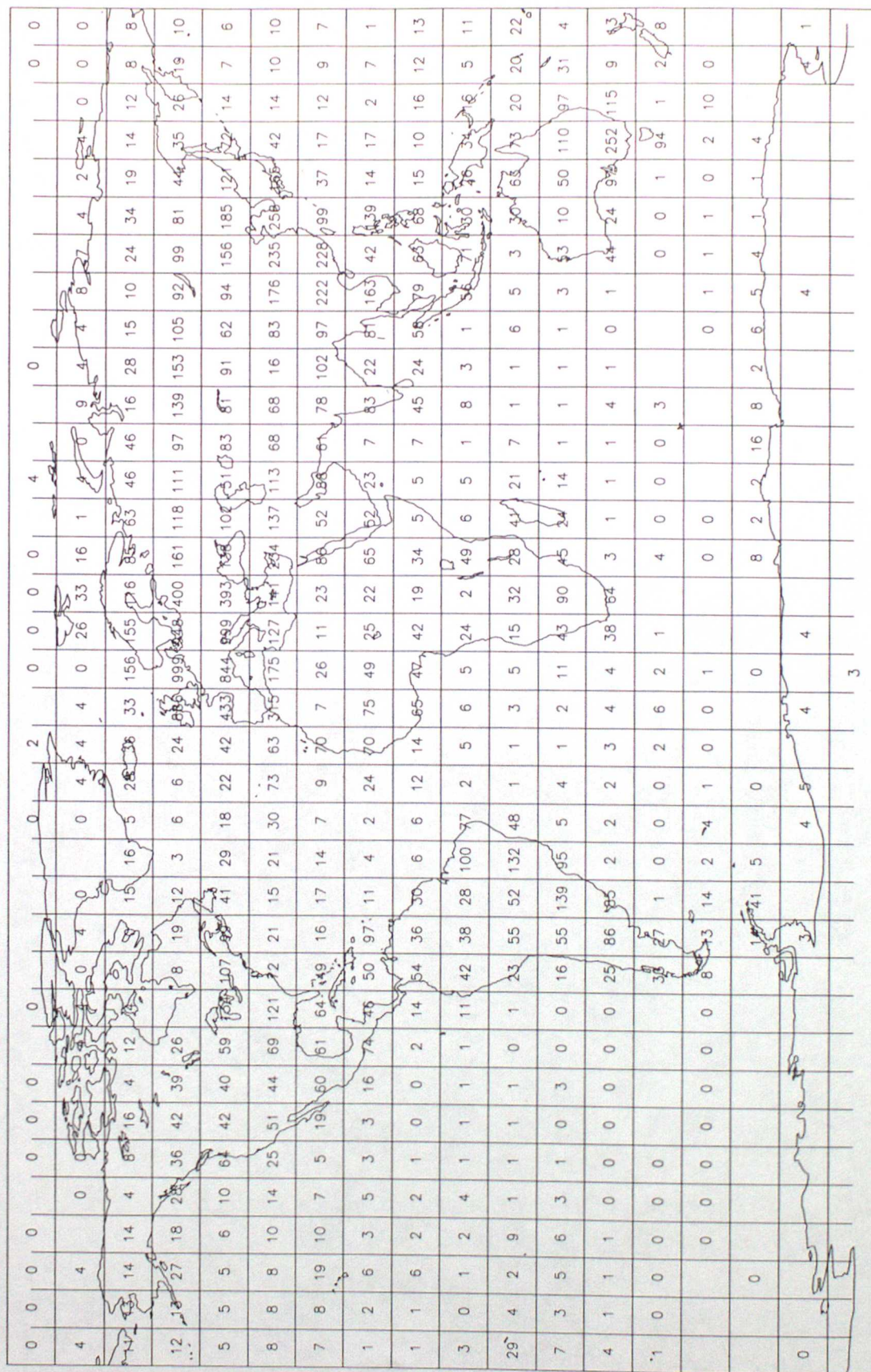


TABLE 2

**MONITORING OF MARINE SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - DRIFTING BUOYS
MONITORING CENTRE: BRACKNELL
MONTH: January 2001**

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for drifting buoys.

Standard of comparison :Background field from UKMO global model.

Position :Average latitude and longitude for period.

Observation times :00, 06, 12, 18 UTC

Elements monitored :Mean sea level pressure (hPa).
:Wind speed (m s^{-1}).
:Wind direction (degrees).

Parameters monitored

:NOBS	:Number of observations received excluding duplicates.
:NGE	:Number of observations with gross errors.
:PGE	:Percentage of observations with gross errors.
:SD	:SD of difference of observations from background values excluding those with gross errors.
:BIAS	:Mean difference of observations from background values excluding those with gross errors. N.B. a positive bias indicates the observation is veered to the background.
:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors.

GROSS ERROR LIMIT :15 hPa (pressure)
:25 m s^{-1} (vector wind)

SELECTION CRITERIA : NOBS ≥ 20 , and one or more of the following:

1. bias	≥ 4 hPa (pressure), ≥ 5 m s^{-1} (wind speed), ≥ 30 degrees (direction).
2. SD	≥ 6 hPa (pressure), ≥ 80 degrees (direction).
3. PGE	≥ 25 .

N.B. Observations of wind direction are only included in the wind direction statistics if the observed OR background wind speed > 5 m s^{-1}

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
MEAN SEA LEVEL PRESSURE											
17546	-35.4	70.6	ALL	P	SUR	322	0	0	0.7	-5.7	5.7
17601	0.6	77.2	ALL	P	SUR	87	68	78	8.5	3.2	9.1
17642	-38.3	7.1	ALL	P	SUR	827	8	1	1.8	4.8	5.1
17645	-62.8	-19.8	ALL	P	SUR	345	127	37	4.6	1.6	4.9
23933	14.9	67.6	ALL	P	SUR	233	124	53	3.6	-7.1	7.9
31526	-28.2	-19.3	ALL	P	SUR	55	55	100			
31953	-20.8	-40.7	ALL	P	SUR	719	0	0	2.6	7.7	8.1
33953	-46.2	31.0	ALL	P	SUR	414	45	11	6.0	2.1	6.4
41524	18.2	-72.1	ALL	P	SUR	23	23	100			
46585	53.6	177.4	ALL	P	SUR	281	64	23	7.0	-3.9	8.0
46624	48.9	157.7	ALL	P	SUR	128	75	59	3.0	-9.8	10.2
64699	55.8	-51.1	ALL	P	SUR	62	14	23	5.4	5.9	8.0
WIND SPEED											
41504	22.9	-67.4	ALL	SPEED	SUR	81	0	0	8.5	5.8	10.3
41594	19.3	-76.5	ALL	SPEED	SUR	278	21	8	5.1	6.3	8.1
46660	50.0	-138.3	ALL	SPEED	SUR	359	78	22	3.6	-5.5	6.5
46701	50.4	-128.1	ALL	SPEED	SUR	68	0	0	2.1	-6.1	6.4
WIND DIRECTION											
41594	19.3	-76.5	ALL	DIRN.	SUR	127	21	17	66.5	-40.7	77.9
46660	50.0	-138.3	ALL	DIRN.	SUR	189	78	41	134.1	36.9	139.1
46701	50.4	-128.1	ALL	DIRN.	SUR	32	0	0	16.8	-36.5	40.2

AVAILABILITY - DRIFTER - JANUARY 2001

10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS

[illegible]

TABLE 3

**MONITORING OF LAND SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - SYNOPS & AUTOSYNOPS
MONITORING CENTRE: BRACKNELL
MONTH: January 2001**

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for synops & autosynops.
Standard of comparison		:Background field from UKMO global model.
Observation times		:00, 06, 12, 18 UTC
Elements monitored		:Surface pressure (hPa).
Parameters monitored	:HT(m)	:Station height (in metres) as given in WMO No. 9 Vol A
	:RP	:Pressure reporting practice M=mean sea level pressure (hPa) reported. S=Station level pressure reported. 8=Geopotential height (m) of 850 hPa surface reported. 7=Geopotential height (m) of 700 hPa surface reported.
	:NOBS	:Number of observations received excluding duplicates.
	:NGE	:Number of observations with gross errors.
	:PGE	:Percentage of observations with gross errors.
	:%REJ	:Percentage of observations flagged excluding those with gross errors.
	:SD	:SD of difference of observations from background values excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors.
GROSS ERROR LIMIT	:15 hPa	(pressure)
SELECTION CRITERIA	:NOBS	≥ 20 ,and one or more of the following:
	1. bias	≥ 4 hPa
	2. SD	≥ 6 hPa
	3.PGE	≥ 25.

N.B. For stn ht ≥ 500m, mslp is that calculated from station level pressure where available.
For stn ht < 500m, mslp is that as reported by the station where available.

WMO REGION 1:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
61816	10.9N	14.3W	69	MS	29	8	28	0	1.1	-2.2	2.5
62056	32.8N	21.8E	625	S8	70	0	0	1	1.6	-5.2	5.4
62271	24.2N	23.3E	417	M	83	0	0	1	1.4	5.1	5.3
62790	12.1N	24.9E	674	MS	101	1	1	2	1.1	4.9	5.0
63602	3.1N	30.9E	1204	S	57	57	100	0			
63680	0.3N	32.6E	1144	M	27	0	0	4	1.6	-8.7	8.8
63801	4.9S	29.6E	882	S8	41	3	7	0	1.1	8.1	8.2
68030	18.5S	25.6E	1071	8	27	0	0	0	0.7	4.2	4.3
68106	23.6S	15.1E	407	S8	63	18	29	0	0.9	0.2	0.9
68338	26.9S	24.6E	1234	S8	49	45	92	0	0.4	-0.2	0.4
68396	26.5S	31.3E	641	S8	56	0	0	0	0.9	5.1	5.2

WMO REGION 2:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
24266	67.6N	133.4E	138	M	121	0	0	17	2.6	4.0	4.8
24671	63.9N	135.9E	402	MS	95	12	13	0	4.6	8.2	9.4
24688	63.3N	143.2E	741	MS	122	60	49	0	2.2	3.7	4.3
29756	54.5N	89.9E	475	M	120	0	0	39	3.6	4.9	6.1
30253	57.9N	114.2E	275	MS	121	3	2	4	4.5	4.7	6.5
30372	56.9N	118.3E	711	MS	123	15	12	0	5.2	4.9	7.1
30554	54.5N	113.6E	995	MS	124	5	4	0	3.4	7.4	8.1
30664	53.5N	115.6E	811	MS	28	0	0	4	1.5	-4.9	5.1
30669	53.1N	117.5E	708	MS	24	0	0	0	1.9	-6.2	6.5
30815	51.5N	103.6E	1442	S8	57	1	2	0	1.6	-4.9	5.2
30967	49.9N	115.8E	623	MS	90	1	1	0	3.9	-7.7	8.6
31123	57.8N	130.9E	255	MS	123	0	0	14	3.4	7.4	8.1
31137	56.3N	131.1E	850	MS	123	22	18	0	5.4	4.2	6.8
31474	51.6N	133.3E	384	MS	121	3	2	0	3.4	4.3	5.5
36982	41.9N	78.2E	3635	S7	110	1	1	5	1.5	-5.1	5.3
38954	37.5N	71.5E	2077	M	83	1	1	22	3.8	4.1	5.6
40726	36.8N	45.7E	1384	MS	99	2	2	2	1.1	5.0	5.1
40741	36.6N	61.2E	235	MS	102	0	0	1	1.3	-4.6	4.8
41254	23.1N	57.7E	1755	S8	73	73	100	0			
41314	17.7N	54.0E	467	MS	117	0	0	0	0.7	4.7	4.8
41396	16.0N	48.9E	700	MS	70	2	3	0	1.3	7.8	7.9
41466	13.7N	44.1E	1402	8	69	0	0	0	0.7	-5.6	5.6
41696	29.0N	66.6E	2015	M	47	22	47	0	1.0	-0.9	1.3
44212	50.0N	92.1E	940	MS	121	2	2	38	3.2	4.2	5.3
44239	48.8N	103.6E	1209	MS	122	1	1	0	1.6	-4.7	5.0
44256	49.6N	114.4E	706	MS	120	0	0	6	2.5	-4.6	5.2
44275	46.8N	98.1E	2255	MS	120	0	0	2	1.7	-4.3	4.6
44313	47.6N	118.6E	689	MS	120	3	3	17	1.8	-6.0	6.3
44416	28.6N	81.6E	720	MS	57	0	0	0	1.1	5.2	5.3
47022	40.8N	128.2E	1200	S	92	0	0	4	1.6	4.4	4.7
51334	44.6N	82.9E	321	M	123	1	1	0	3.4	6.8	7.6
51379	44.0N	89.6E	794	M	123	0	0	22	3.0	6.1	6.8
51495	43.5N	91.6E	874	M	122	17	14	2	2.4	11.3	11.6
51730	40.5N	81.1E	1013	M	123	0	0	7	2.1	4.2	4.7
51818	37.6N	78.3E	1376	M	123	0	0	20	2.5	5.3	5.9
52378	41.4N	102.4E	960	M	123	0	0	2	2.1	4.8	5.2
52602	38.8N	93.4E	2734	S	123	0	0	0	1.7	-5.5	5.8
52866	36.6N	101.8E	2262	S	124	0	0	0	1.2	-4.7	4.9
52955	35.6N	100.8E	3201	S	123	1	1	0	1.0	12.8	12.8
53083	44.6N	114.2E	1183	M	123	0	0	0	2.9	6.4	7.0
53352	41.7N	110.4E	1377	M	123	0	0	26	2.8	4.8	5.6
53480	41.0N	113.1E	1416	M	122	0	0	0	2.8	4.5	5.3
53487	40.1N	113.3E	1069	M	122	0	0	29	3.0	4.1	5.1
54115	43.6N	118.1E	800	M	123	0	0	32	2.8	4.1	5.0
54308	41.2N	116.6E	661	M	122	0	0	0	2.5	4.2	4.9

WMO REGION 2:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
54386	41.4N	128.2E	1018	M	123	0	0	35	3.3	5.7	6.6
54587	39.1N	123.2E	4	M	122	0	0	1	1.0	-4.5	4.6
56144	31.8N	98.6E	3184	S	124	0	0	1	1.6	-4.7	5.0
56146	31.6N	100.0E	339	S	124	124	100	0			
56287	30.0N	103.0E	629	M	124	0	0	1	1.7	4.2	4.5
56385	29.5N	103.3E	3049	S	124	0	0	9	2.1	-5.9	6.3
56444	28.5N	98.9E	3488	S	122	67	55	43	0.7	13.7	13.7
56462	29.0N	101.5E	2994	S	124	0	0	0	1.9	9.1	9.3
56838	24.0N	97.8E	776	M	122	0	0	0	1.2	4.3	4.5
56946	23.6N	99.4E	1104	M	122	0	0	1	1.8	4.5	4.8
56954	22.6N	99.9E	1054	M	122	0	0	0	2.0	4.4	4.8
57006	34.6N	105.8E	1143	M	122	0	0	0	1.7	5.2	5.5

WMO REGION 3:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
80099	7.1N	70.7W	128	MS	28	0	0	4	1.7	-8.1	8.3
80410	10.1N	69.3W	613	MS	99	39	39	0	0.6	0.4	0.7
80413	10.3N	67.7W	436	MS	91	28	31	1	2.5	-0.1	2.5
80428	9.0N	69.7W	163	MS	101	41	41	2	2.5	-1.4	2.9
80438	8.6N	71.2W	1479	MS	104	43	41	0	1.8	0.6	1.9
80475	7.6N	72.1W	327	MS	78	28	36	1	1.9	2.0	2.8
80479	10.3N	68.2W	1000	S	32	12	38	0	0.6	-1.4	1.5
82704	7.6S	72.7W	170	MS	88	0	0	0	1.3	-4.3	4.5
83214	10.3S	54.9W	285	MS	84	0	0	0	4.3	-6.3	7.6
83235	12.4S	46.4W	604	MS	91	1	1	1	0.9	6.4	6.5
83319	14.7S	52.4W	315	MS	91	0	0	0	0.9	4.1	4.2
83332	14.1S	46.4W	826	MS	91	7	8	0	0.8	13.5	13.5
83376	15.9S	49.0W	740	MS	92	2	2	1	1.3	-4.0	4.2
83408	14.3S	43.8W	447	MS	84	0	0	0	0.8	11.4	11.4
83488	17.8S	42.9W	1097	MS	91	91	100	0			
83531	18.6S	46.5W	940	MS	86	0	0	0	0.9	-6.8	6.9
83587	19.9S	43.9W	850	MS	91	0	0	0	0.7	-7.5	7.5
83773	23.1S	48.9W	793	MS	66	0	0	0	0.6	-10.8	10.8
83836	25.5S	50.6W	837	MS	92	0	0	0	0.8	-5.4	5.5
83953	30.9S	55.5W	231	MS	90	0	0	1	1.2	-10.6	10.7
84377	3.8S	73.3W	125	MS	106	0	0	0	1.2	4.0	4.2
84425	5.9S	76.1W	179	MS	82	0	0	1	1.4	4.1	4.3
84455	6.5S	76.4W	281	MS	82	0	0	0	1.0	4.7	4.8
84472	7.1S	78.5W	2620	S	53	0	0	0	0.8	-6.2	6.3
84474	7.2S	76.7W	350	S	81	0	0	0	1.1	9.5	9.6
84686	13.6S	72.0W	3248	S	107	0	0	0	0.7	-4.9	4.9
84688	13.7S	73.4W	3444	S	42	0	0	5	3.4	-10.0	10.6
84782	18.1S	70.3W	468	MS	88	0	0	1	1.4	7.2	7.3
85140	14.3S	67.4W	140	MS	50	0	0	0	1.3	4.5	4.7
85264	18.5S	64.1W	1998	S	44	42	95	0	13.5	-1.0	13.5
85312	19.8S	63.9W	992	M	37	2	5	3	0.9	-10.9	10.9
85432	22.5S	68.9W	2320	S8	88	0	0	0	0.7	5.6	5.6
88986	59.4S	27.3W	78	M	308	293	95	31	1.0	-0.6	1.2

WMO REGION 4:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
71048	61.6N	125.8W	610	MS	40	0	0	60	1.4	5.0	5.2
71075	58.2N	103.7W	492	MS	124	0	0	32	1.6	-4.1	4.4
71215	49.0N	119.4W	283	MS	124	0	0	0	2.3	4.2	4.8
71492	69.2N	122.4W	552	MS	123	0	0	0	1.6	-4.4	4.7
71506	66.9N	136.3W	720	MS	121	0	0	9	2.3	-5.9	6.3

WMO REGION 4:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
71584	47.7N	59.3W	33	S	23	8	35	0	0.8	-1.7	1.9
71882	51.0N	118.2W	443	MS	124	0	0	8	2.2	4.0	4.6
76118	30.4N	109.7W	1040	MS	33	0	0	0	0.8	-11.1	11.1
76243	28.7N	100.5W	250	MS	97	0	0	0	1.1	4.0	4.1
76412	24.8N	107.4W	39	MS	43	0	0	14	2.7	6.1	6.7
76491	23.8N	99.1W	355	MS	110	0	0	0	1.1	4.2	4.3
76658	19.2N	103.7W	494	MS	44	0	0	2	1.3	6.8	6.9
76743	18.0N	92.9W	10	MS	107	0	0	0	0.7	5.8	5.8
76903	14.9N	92.3W	118	MS	117	0	0	0	0.7	5.9	5.9
78627	15.3N	91.5W	1901	S	42	0	0	0	0.8	4.3	4.4

WMO REGION 5:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
92010	6.1S	145.4E	1587	M	55	1	2	0	0.8	10.8	10.8
92036	2.4S	147.4E	1	8	246	246	100	0			
94130	14.8S	131.9E	120	MS	118	0	0	0	0.9	5.9	6.0
94868	37.8S	145.0E	35	MS	125	0	0	0	0.8	9.7	9.7
96505	3.7N	115.7E	919	S8	29	29	100	0			
96881	7.6S	111.5E	110	M	33	0	0	18	4.5	4.0	6.0
97378	10.7S	123.1E	1	MS	45	43	96	0	4.4	-10.2	11.1

WMO REGION 6:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
01245	62.8N	9.7E	671	MS	91	0	0	0	1.1	8.4	8.5
06605	47.1N	7.1E	1599	S8	124	0	0	6	1.5	-5.1	5.3
06685	47.0N	9.1E	515	MS	124	0	0	3	1.1	6.7	6.8
10557	50.5N	11.1E	845	S8	372	372	100	0			
11343	47.1N	13.0E	3105	S7	124	0	0	14	1.4	-4.4	4.6
11916	49.0N	19.6E	2005	S8	123	0	0	14	1.8	-4.3	4.7
12140	54.4N	18.7E	2	MS	117	0	0	0	0.7	7.7	7.7
13269	44.3N	19.9E	176	MS	121	0	0	0	1.3	8.2	8.3
14528	44.8N	15.9E	246	MS	56	0	0	5	2.2	4.5	5.0
14554	44.9N	18.4E	140	S	53	6	11	0	0.8	-13.2	13.2
14650	43.8N	18.0E	972	S	62	62	100	0			
16470	36.8N	12.0E	191	MS	65	0	0	3	1.1	-4.4	4.5
17092	39.8N	39.5E	1218	S8	123	0	0	0	1.2	9.5	9.6
17203	38.9N	40.5E	1177	S8	123	0	0	0	1.0	4.6	4.7
37788	40.1N	44.4E	854	M	118	0	0	46	3.3	4.5	5.6

ANTARCTIC:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
89264	71.4S	68.9W	780	S	217	1	0	0	0.6	7.9	7.9
89266	72.2S	60.3W	91	S	273	263	96	0	0.3	-14.6	14.6
89272	74.8S	71.5W	1369	S	239	239	100	0			
89612	66.3S	110.8E	390	S	230	230	100	0			
89661	73.1S	169.6E	200	S	70	0	0	0	1.3	7.0	7.1
89666	76.7S	163.0E	200	S	50	50	100	0			
89744	74.0S	43.0E	3353	S	280	0	0	0	2.0	5.0	5.4
89769	78.5S	168.4E	50	S	378	378	100	0			
89805	74.1S	109.8E	3096	S	222	66	30	0	2.6	3.5	4.4
89847	67.6S	146.0E	30	S	316	0	0	0	1.3	-9.5	9.6

TABLE 4A

MONTHLY MONITORING OF AIRCRAFT OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH: January 2001

Monitoring procedures

Period	:One calendar month.
Data monitored	:Statistics for each airline carrier.
Area monitored	:90°N - 90°S, 180°W - 180°E.
Standard of comparison	:Background field from UKMO global model.
Observation times	:All hours combined.
Level(s) monitored	:300.0 - 150.0 hPa
Elements monitored	:TEMP in °C ; WIND in m s ⁻¹
Parameters monitored	
:N REP.	:Number of observations received excluding duplicates.
:PG	:Percentage of observations with gross errors.
:PR	:Percentage of observations rejected by quality control including rejections from the duplicate check.
:PC	:Percentage of observations with calm winds.
:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors in Temperature & vector wind.
:BIAS	:Mean difference of observations from background values excluding those with gross errors in Temperature & Wind Speed.
GROSS ERROR LIMITS	:10.0 °C ; 60 m s ⁻¹ Vector Wind
SELECTION CRITERIA	:N REP ≥ 20

NB : All American ACARS data are grouped together and statistics are shown at the bottom of the table as "US ACARS". All ADS reports are similarly grouped together.

IDENT.	N.REP.	TEMPERATURE				BIAS	N.REP.	WIND				BIAS
		PG	PR	RMS	PG			PR	PC	RMS		
AAA	50	0	60	2.4	1.0		50	0	62	0	7.9	1.4
AAH	885	0	40	1.7	0.2		886	0	40	0	7.4	0.8
AAL	6644	1	23	1.6	0.2		6622	0	23	0	7.4	0.9
AAR	1724	0	8	1.9	-0.4		1715	1	9	0	8.6	0.0
ACA	1855	1	4	1.6	0.0		1889	0	4	0	6.8	0.7
AEA	855	1	4	1.7	0.0		832	1	5	0	8.4	0.6
AEL	705	0	6	1.7	-0.7		712	0	7	0	8.0	0.6
AEY	404	0	3	1.9	1.2		406	0	5	0	8.7	-0.1
AFL	377	0	4	2.2	0.6		382	1	4	0	7.9	0.8
AFR	2109	1	6	1.7	0.0		2134	0	6	0	7.4	0.9
AIH	296	0	3	1.6	-0.1		296	0	4	0	7.2	0.6
AJM	188	0	1	1.5	-0.3		190	1	3	0	7.6	1.4
ALM	93	1	3	1.1	0.4		93	0	3	0	7.6	2.3
AMM	153	1	5	1.8	0.3		151	0	60	0	9.3	0.4
AMT	912	1	43	2.0	0.9		908	0	44	0	8.0	1.4
AMX	249	2	7	2.2	0.7		250	1	5	0	8.3	0.5
ANA	1211	0	12	1.7	0.7		1214	0	13	0	7.7	0.6
ANZ	6839	0	34	1.3	0.2		6805	0	34	0	7.0	0.7
AOM	1306	1	12	1.6	0.5		1289	0	12	0	7.8	0.7
ARG	72	6	24	2.1	0.9		72	0	68	0	7.2	0.0
AVA	634	1	4	1.9	0.4		635	0	4	0	9.0	0.4
AVE	184	1	4	1.5	1.0		180	1	4	0	7.8	1.2
AVN	155	0	49	1.2	0.0		157	0	49	0	6.8	-1.3
AZA	609	0	100	2.4	0.5		619	0	5	0	8.4	0.7
BAL	300	0	4	1.4	-0.1		295	0	4	0	6.6	1.2
BAW	1500	1	7	1.8	0.1		1489	0	7	0	7.3	1.0
BBB	38	0	0	1.6	0.3		36	0	0	0	5.3	1.5
BLX	58	0	2	1.5	-1.0		59	0	3	0	8.2	0.5
BWA	342	1	55	3.4	2.7		342	1	7	0	9.2	0.4
CAL	201	2	8	1.7	0.6		207	0	8	0	9.9	0.1
CCA	220	4	22	2.7	0.1		231	1	100	0	15.1	0.6
CDN	2052	0	16	1.7	0.0		2023	0	17	0	8.5	0.4
CES	370	1	8	1.7	0.3		382	1	10	0	10.3	0.4
CFG	873	0	4	1.5	-0.7		873	0	5	0	8.3	0.5
CLX	364	0	5	1.7	-0.3		365	0	5	0	6.7	0.2
CMI	264	0	3	1.8	0.6		281	0	5	0	10.0	1.0
CMM	481	0	24	2.2	-0.3		475	0	23	0	9.1	1.1
COA	1464	0	28	1.6	0.0		1492	0	29	0	9.1	2.0
CPA	89	2	16	1.4	0.9		94	0	14	0	5.6	1.7
CRL	958	1	7	2.2	1.3		963	0	7	0	7.2	0.8
CSN	116	0	7	2.0	0.4		118	0	6	0	6.3	0.3
CTB	22	0	9	1.3	0.5		22	0	9	0	6.6	0.2
CTM	76	0	36	2.0	-1.3		77	0	36	0	7.3	1.1
CUB	262	1	4	1.9	1.1		262	0	3	0	7.6	1.1
DAL	3122	1	36	1.6	0.0		3152	0	37	0	7.5	1.0
DBY	357	1	2	1.4	-0.2		362	0	2	0	8.1	0.6
DLH	1775	1	5	1.6	0.1		1763	0	5	0	6.5	0.7
EDW	42	0	2	1.7	0.2		43	0	2	0	8.0	0.4
EEZ	99	0	100	2.7	1.6		95	2	7	0	8.2	1.3
EIA	168	0	40	1.6	0.0		168	0	42	0	10.2	2.3
ELY	95	0	0	1.6	-0.2		95	1	2	0	6.6	1.4
EVA	641	0	8	1.8	0.1		659	0	7	0	7.6	0.2
EWV	70	0	4	1.1	0.3		73	0	5	0	9.7	2.1
FDX	2192	0	41	1.6	0.6		2210	0	41	0	7.8	0.7
FIN	338	0	1	1.3	0.2		331	1	3	0	7.9	0.6
FJI	981	1	48	1.4	0.4		958	0	48	0	7.8	0.5
FOM	568	0	30	1.4	0.0		562	0	31	0	6.6	0.2
FWQ	121	0	53	1.5	0.4		117	0	54	0	6.9	0.4
GAF	36	3	11	2.5	-0.3		36	0	6	0	7.1	0.4

IDENT.	N.REP.	TEMPERATURE				N.REP.	WIND				BIAS
		PG	PR	RMS	BIAS		PG	PR	PC	RMS	
GCO	207	1	8	1.7	0.0	214	0	100	0	14.7	4.0
GHA	166	1	4	1.8	-0.3	162	0	6	0	11.9	1.3
GRL	32	0	0	1.1	0.0	32	0	0	0	4.1	2.1
GTI	256	0	11	1.8	-0.1	256	0	10	0	7.9	0.6
HAL	4289	0	37	1.7	0.3	4261	0	37	0	10.1	1.7
HLF	138	0	2	1.7	-0.6	139	1	4	0	8.0	0.7
HRH	318	0	63	1.2	0.1	318	0	63	0	8.6	0.5
HVN	51	0	2	1.8	0.3	51	0	0	0	7.1	1.7
IBE	2852	1	6	1.7	0.4	2820	0	7	0	8.7	0.6
ICE	1074	0	2	1.6	0.3	1060	0	2	0	5.9	0.7
IWD	119	0	3	1.2	-0.4	118	1	7	0	11.2	0.5
JAA	51	2	4	2.3	1.6	51	0	4	0	9.9	3.0
JAL	6355	0	6	1.8	0.2	6378	0	6	0	8.0	0.6
JAZ	1024	1	4	1.9	0.9	1033	0	3	0	8.1	0.8
JKK	267	0	5	1.4	0.1	256	0	7	0	9.7	2.0
JMC	207	0	7	1.9	1.2	195	0	9	0	9.5	0.4
KAL	3476	1	12	1.9	-0.1	3460	0	13	0	9.0	0.6
KLM	2584	0	10	1.5	0.3	2600	0	10	0	7.2	0.7
LAN	109	3	6	2.1	1.2	113	0	100	0	9.5	2.4
LAP	65	6	23	2.1	1.4	65	0	17	0	6.6	1.1
LDA	134	0	1	1.5	0.0	133	0	5	0	7.6	1.5
LDI	913	0	47	1.6	-0.5	921	0	4	0	7.8	0.6
LIB	325	1	3	1.8	1.0	327	1	6	0	8.6	0.4
LOT	297	0	6	1.8	-1.1	292	1	7	0	7.1	0.3
LPR	33	0	15	2.6	0.6	33	0	9	0	7.1	-0.9
LTU	453	0	4	1.6	-0.4	446	0	4	0	7.7	0.9
MAS	588	0	5	1.9	0.6	590	2	62	0	12.1	0.2
MON	82	0	2	1.5	0.1	80	0	4	0	8.6	0.5
MPD	268	1	9	1.9	-0.2	266	0	9	0	10.5	0.7
MPH	652	0	2	1.7	-0.7	657	0	2	0	8.3	0.6
NCA	529	0	3	1.5	0.2	525	0	4	0	7.4	0.6
NVR	46	2	2	1.0	-0.2	48	0	0	0	6.1	0.3
NWA	10672	1	11	1.8	0.6	10671	0	12	0	8.2	0.6
NZL	3743	0	19	1.0	0.0	3743	0	19	0	5.4	0.6
OAE	46	4	26	2.3	0.1	45	0	31	0	16.7	1.9
OAL	38	0	0	1.3	-0.2	39	0	0	0	5.9	2.9
PAC	424	0	30	1.5	0.1	429	0	30	0	7.4	1.5
PAL	1772	0	12	1.7	0.0	1712	0	13	0	8.3	0.8
PAO	793	1	55	1.4	0.3	771	0	55	0	8.0	1.0
PIC	21	10	10	0.7	0.3	21	0	0	0	5.8	-0.1
PUA	26	12	42	2.6	1.2	26	0	35	0	10.5	0.0
QFA	4847	0	49	1.4	0.4	4817	0	50	0	6.7	0.5
RAF	48	0	0	1.4	1.0	49	0	4	0	9.7	1.1
RAM	40	5	15	2.6	-0.3	40	0	15	0	11.9	0.4
RCH	185	4	18	2.9	-1.0	158	0	18	0	12.2	2.1
RKA	110	2	5	1.9	-0.5	110	0	2	0	6.7	1.6
RRR	26	0	0	1.5	-0.6	25	0	0	0	5.9	1.9
RSL	20	15	30	0.9	0.6	20	0	20	0	8.3	1.6
RYN	255	0	43	1.3	0.6	254	1	44	0	9.2	1.3
RZO	154	0	6	1.9	-0.5	153	1	50	0	10.3	0.5
SAA	410	1	6	1.7	-0.7	408	0	5	0	7.3	0.6
SIA	597	0	3	1.6	0.2	597	0	4	0	6.5	0.4
SLR	233	0	7	1.5	0.1	230	1	8	0	8.7	1.2
SOL	28	0	0	1.3	0.5	27	0	4	0	6.7	0.0
SVA	83	0	7	2.1	0.7	89	0	6	0	8.8	0.5
SWR	33	0	3	1.6	0.4	32	0	13	0	12.1	1.8
TAM	50	4	22	2.1	1.0	51	2	20	0	7.5	0.6
TAP	535	0	3	1.5	-0.4	533	0	4	0	7.9	0.8
TBA	49	0	31	2.4	0.5	49	4	39	0	17.4	-0.4

IDENT.	N.REP.	TEMPERATURE				N.REP.	WIND				BIAS
		PG	PR	RMS	BIAS		PG	PR	PC	RMS	
THA	313	0	4	1.5	0.2	314	4	100	0	17.6	0.2
THT	102	3	29	2.1	0.0	100	0	25	0	9.5	0.3
TSC	72	1	19	1.7	0.2	74	0	18	0	9.0	2.3
TWA	1913	1	25	1.6	0.1	1876	0	25	0	8.1	1.2
UAL	156912	0	100	1.3	-0.2	156653	0	100	0	5.4	0.6
UPS	1614	0	42	1.7	0.2	1633	0	43	0	7.6	1.2
USA	241	0	1	1.7	0.2	200	1	4	0	8.9	1.0
VIR	636	0	3	1.6	0.0	627	0	3	0	7.8	0.7
VKG	135	0	2	1.4	0.2	140	0	5	0	10.1	0.9
VPB	37	0	11	1.8	0.3	37	0	11	0	10.1	-1.0
VRG	264	3	22	2.2	1.0	270	0	100	0	12.3	1.0
VVR	26	4	35	1.8	-0.2	28	0	36	0	10.9	3.1
WOA	248	0	6	1.8	0.3	262	0	7	0	7.3	0.9
YSS	41	0	0	1.9	0.6	41	0	5	0	11.9	-0.1
AR	3947	12	100	3.5	3.0	3922	0	13	0	10.9	2.9
AU	53835	0	14	1.2	0.5	53824	0	14	0	5.3	0.5
EU	125618	0	28	1.2	0.2	125617	0	27	0	4.9	0.7
KL	7907	0	19	1.3	0.8	7890	0	19	0	5.4	1.1
LH	2094	0	9	1.6	1.1	2076	0	9	0	4.8	1.1
MK	3712	0	17	1.5	1.2	3677	0	6	0	8.2	1.8
SA	3158	0	11	1.4	1.0	3158	0	11	0	6.5	0.4
SV	1341	0	100	2.7	2.5	1314	0	4	0	5.7	0.6
WA	377	8	16	1.7	0.5	370	6	100	0	15.1	-1.9
XX	5499	2	9	1.6	0.2	5444	0	11	0	10.3	1.1
N	937	2	25	2.3	0.6	1003	0	25	0	9.4	1.2
US ACARS	863831	1	55	1.4	0.3	863822	0	55	0	5.5	0.8

TABLE 4B

MONTHLY MONITORING OF AIRCRAFT OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH: January 2001

Monitoring procedures

Period	:One calendar month.	
Data monitored	:Statistics for each airline carrier.	
Area monitored	:90°N - 90°S, 180°W - 180°E.	
Standard of comparison	:Background field from UKMO global model.	
Observation times	:All hours combined.	
Level(s) monitored	:1000.0 – 300.1 hPa	
Elements monitored	:TEMP in °C ; WIND in m s ⁻¹	
Parameters monitored	:N REP.	:Number of observations received excluding duplicates.
	:PG	:Percentage of observations with gross errors.
	:PR	:Percentage of observations rejected by quality control including rejections from the duplicate check.
	:PC	:Percentage of observations with calm winds.
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors in Temperature & vector wind.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors in Temperature & Wind Speed.
GROSS ERROR LIMITS	:10.0 °C ; 60 m s ⁻¹ Vector Wind	
SELECTION CRITERIA	:N REP ≥ 20	

NB: All American ACARS data are grouped together and statistics are shown at the bottom of the table as "US ACARS". All ADS reports are similarly grouped together.

IDENT.	N.REP.	TEMPERATURE				N.REP.	WIND				BIAS
		PG	PR	RMS	BIAS		PG	PR	PC	RMS	
AAL	426	1	31	1.3	-0.2	429	0	30	0	6.5	0.9
AFL	29	0	0	2.5	1.7	30	0	0	0	8.0	1.2
AFR	57	0	9	1.8	-0.1	59	0	8	0	6.0	1.0
ANZ	172	9	34	1.3	0.1	176	0	29	0	7.9	0.0
AOM	69	0	1	1.5	1.0	69	0	1	0	5.8	0.8
ARG	25	8	20	4.0	1.4	27	0	56	0	9.8	4.3
CDN	31	0	23	1.9	0.2	30	0	27	0	12.9	1.4
CFC	107	4	12	1.2	0.5	106	0	12	0	8.0	1.8
CFG	27	0	4	1.6	-0.3	27	0	4	0	6.1	-0.5
CLX	41	0	2	1.3	-0.7	42	0	2	0	7.0	-0.7
CMI	52	2	13	2.7	-0.6	53	0	9	0	12.7	6.5
COA	108	2	36	1.1	-0.1	108	0	37	0	9.5	0.3
CRL	37	0	5	2.2	0.4	37	0	8	0	12.1	-3.3
CTM	31	39	55	2.9	-2.5	31	0	39	0	7.1	3.1
CUB	53	0	6	2.0	1.8	54	0	7	0	7.6	1.2
DAL	561	0	45	1.2	0.1	563	0	46	0	7.4	1.0
DHL	50	0	70	6.9	-6.2	46	0	9	0	12.9	2.2
DLH	185	0	14	1.6	0.4	184	0	14	0	7.9	-0.4
EVA	75	0	36	1.8	-0.6	73	0	41	0	13.2	1.7
EWV	106	8	18	2.2	0.5	105	0	9	0	9.2	1.1
FDX	281	0	30	1.5	0.5	286	0	30	0	8.4	1.0
FIN	33	0	0	1.4	0.0	33	0	0	0	4.9	1.0
GAF	32	3	6	2.0	0.3	32	0	0	0	7.0	2.2
GCO	152	0	1	1.2	-0.1	158	0	100	0	16.3	5.9
GHA	43	2	2	0.9	0.0	43	0	2	0	10.8	3.2
GTI	23	0	17	1.2	-0.8	23	0	17	0	7.1	-0.5
HAL	220	2	42	2.3	0.1	215	0	43	0	11.2	1.6
IBE	72	0	31	1.2	0.0	72	0	31	0	7.1	0.4
ICE	71	0	1	1.3	0.1	72	0	3	0	9.4	1.7
JAA	44	5	7	2.0	0.8	44	0	7	0	11.3	3.2
JAL	170	3	14	1.2	0.2	171	0	11	0	7.0	1.4
JAZ	216	0	6	1.6	0.9	220	0	6	0	6.6	0.3
JSC	22	0	5	2.8	-2.4	22	0	14	0	12.0	2.7
KAL	61	3	23	1.5	-0.3	61	0	23	0	9.6	0.9
KIW	93	2	25	3.0	2.0	71	0	18	0	8.1	0.9
KLM	70	1	7	1.4	0.2	70	1	7	0	6.6	1.2
LAN	86	1	2	2.4	0.7	94	1	100	0	8.5	1.5
LIB	20	0	5	2.3	0.6	20	0	5	0	8.1	0.0
MAS	37	0	8	1.5	0.5	36	0	56	0	8.4	1.4
MPH	45	0	16	1.5	-0.2	45	0	16	0	6.7	0.8
NCA	84	0	1	1.3	0.3	82	0	5	0	8.2	-0.1
NOW	25	0	0	2.0	0.7	25	0	8	0	15.1	1.7
NWA	408	0	18	1.8	0.7	406	0	19	0	9.4	1.2
NZL	8767	0	54	1.6	-0.1	8767	0	54	0	5.4	0.9
PAC	22	0	18	2.2	-0.1	22	0	27	0	12.2	0.3
PAL	43	0	2	1.2	-0.7	44	0	0	0	5.9	0.1
QFA	247	8	45	1.4	0.3	252	0	42	0	8.0	0.9
RCH	157	3	6	2.2	0.4	151	1	8	0	12.4	2.2
RRR	99	1	10	3.8	3.0	99	0	13	0	11.3	1.0
SAA	56	0	2	1.2	-0.9	56	0	2	0	4.9	-1.1
SIA	58	0	9	1.1	0.1	60	0	8	0	4.1	0.6
SKI	157	19	28	4.3	-2.0	82	0	5	0	9.1	2.3
SWR	25	0	20	1.1	-0.1	25	0	20	0	12.6	-0.4
UAL	232956	0	100	1.2	-0.1	232349	0	100	0	4.9	0.3
UPS	110	0	33	1.4	0.4	106	1	35	0	7.9	0.1
VHJ	71	1	3	2.0	0.1	69	0	0	0	7.7	0.8
VTA	37	0	11	2.5	-1.2	41	0	7	0	5.6	1.4
VVP	33	24	79	6.3	5.4	32	3	50	0	12.5	4.2
VVR	31	3	32	2.8	0.5	31	0	32	0	7.7	-0.9

IDENT.	N.REP.	TEMPERATURE				N.REP.	WIND				BIAS
		PG	PR	RMS	BIAS		PG	PR	PC	RMS	
AR	3488	5	100	2.1	1.3	3456	0	55	0	5.3	0.9
AU	98360	0	65	1.6	-0.2	98359	0	65	0	4.4	0.5
EU	610257	0	76	1.1	0.2	609348	0	76	0	4.1	0.1
KL	5226	0	59	1.3	0.6	5197	0	59	0	4.3	0.4
LH	600	0	63	1.1	0.6	595	0	63	0	4.5	1.4
MK	2929	0	60	1.3	0.4	2888	0	55	0	6.5	1.7
SA	2572	0	60	1.6	0.4	2570	0	60	0	4.9	0.8
SV	2183	0	100	3.0	2.6	2169	0	49	0	4.9	1.2
WA	55	15	27	2.9	0.4	55	5	100	0	16.1	-4.3
XX	1183	4	10	1.8	0.2	1178	0	13	0	13.0	1.4

ACARS	1155433	0	70	1.3	0.3	1153058	0	70	0	4.8	0.2
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MEAN DAILY COUNT OF AIRCRAFT 300 - 150 HPA

OBSERVATIONS WITH O-B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED

GLOBAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS = 43123

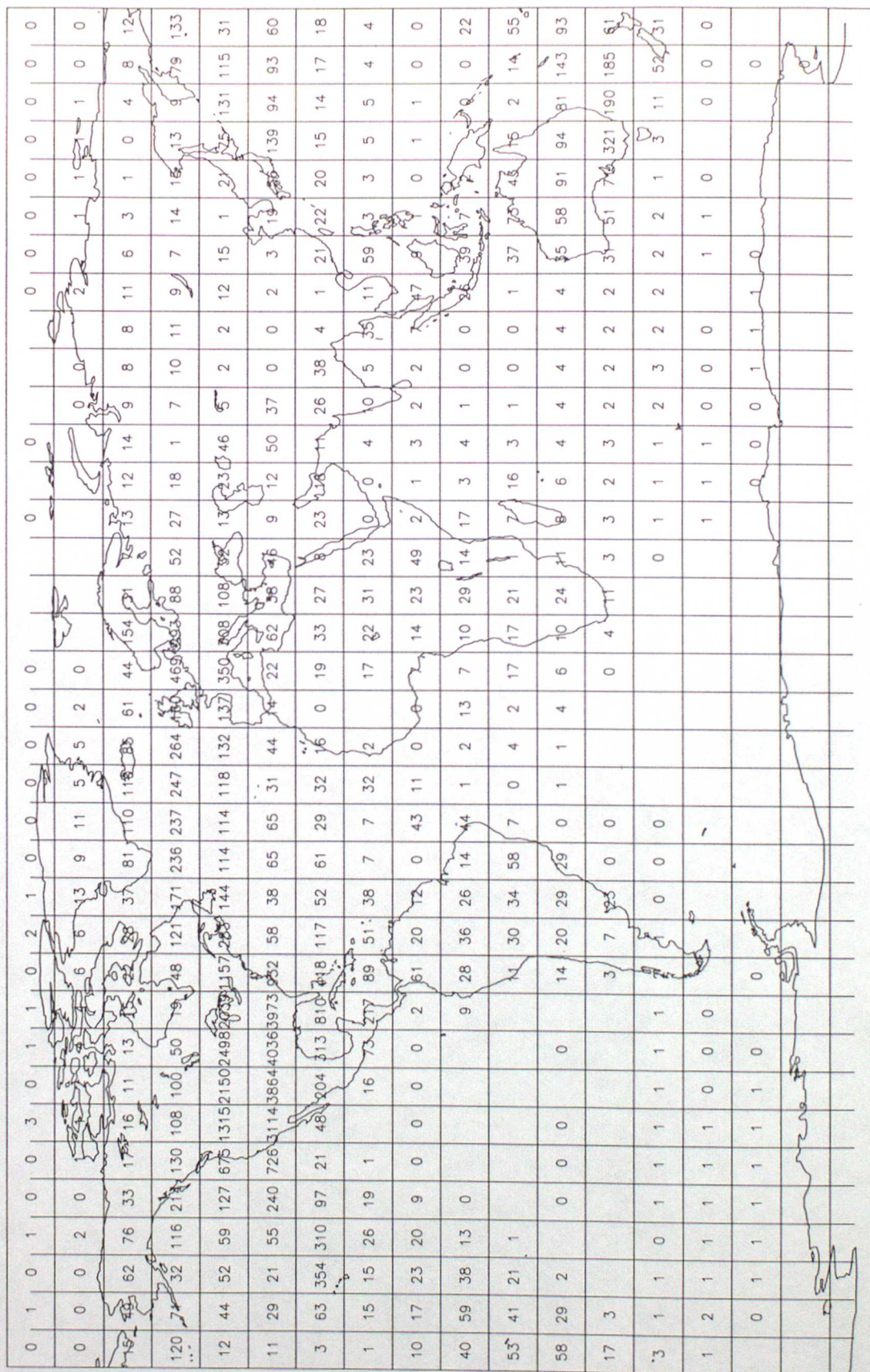


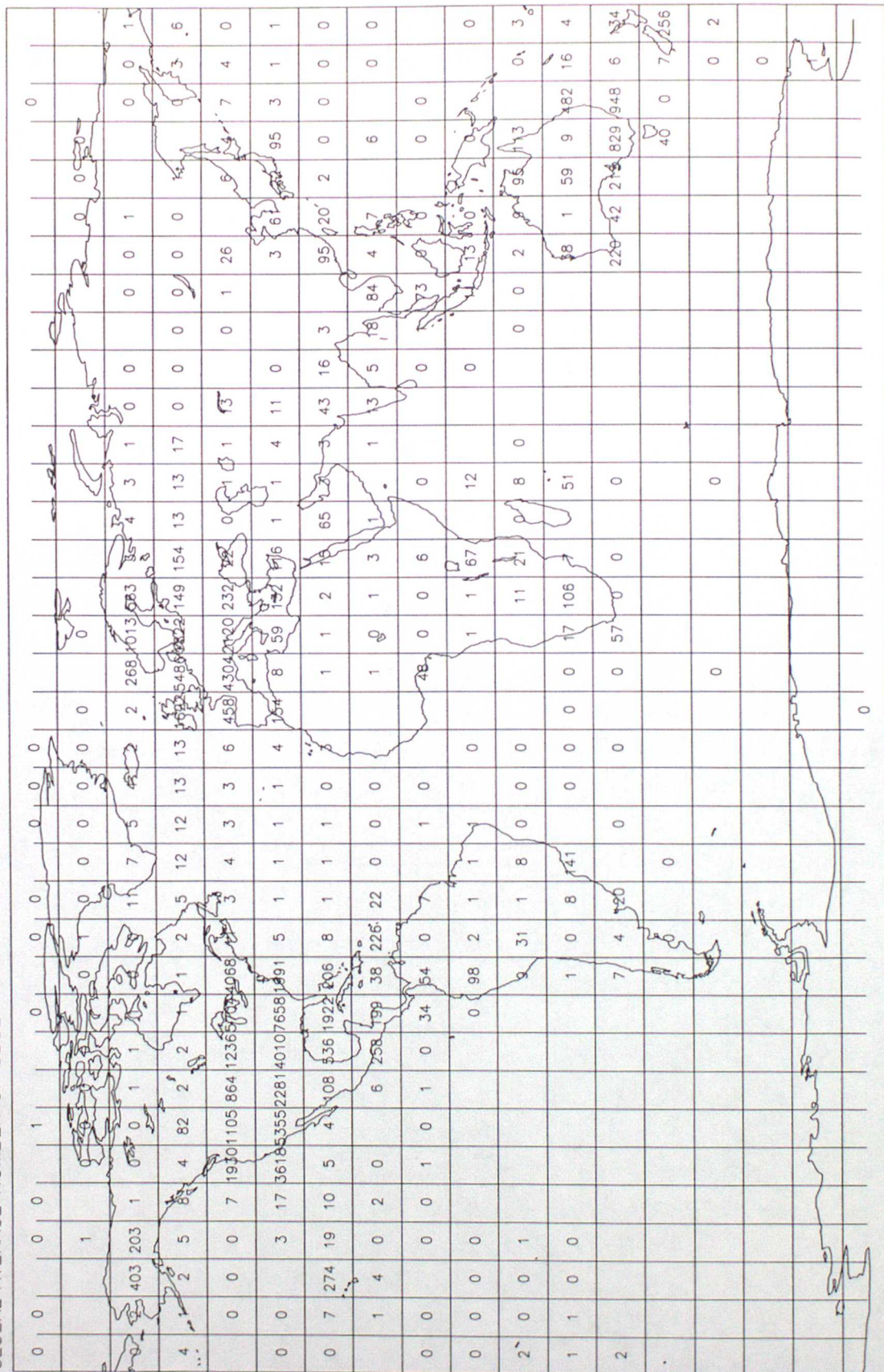
FIGURE 3B

MEAN DAILY COUNT OF AIRCRAFT 1000 - 301 HPA

JANUARY 2001

OBSERVATIONS WITH O-B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED

GLOBAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS = 68573



AIRCRAFT MEAN WINDS BETWEEN 300 AND 150 HPA

JANUARY 2001

OBSERVATIONS WITH O-B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

FIGURE 4A

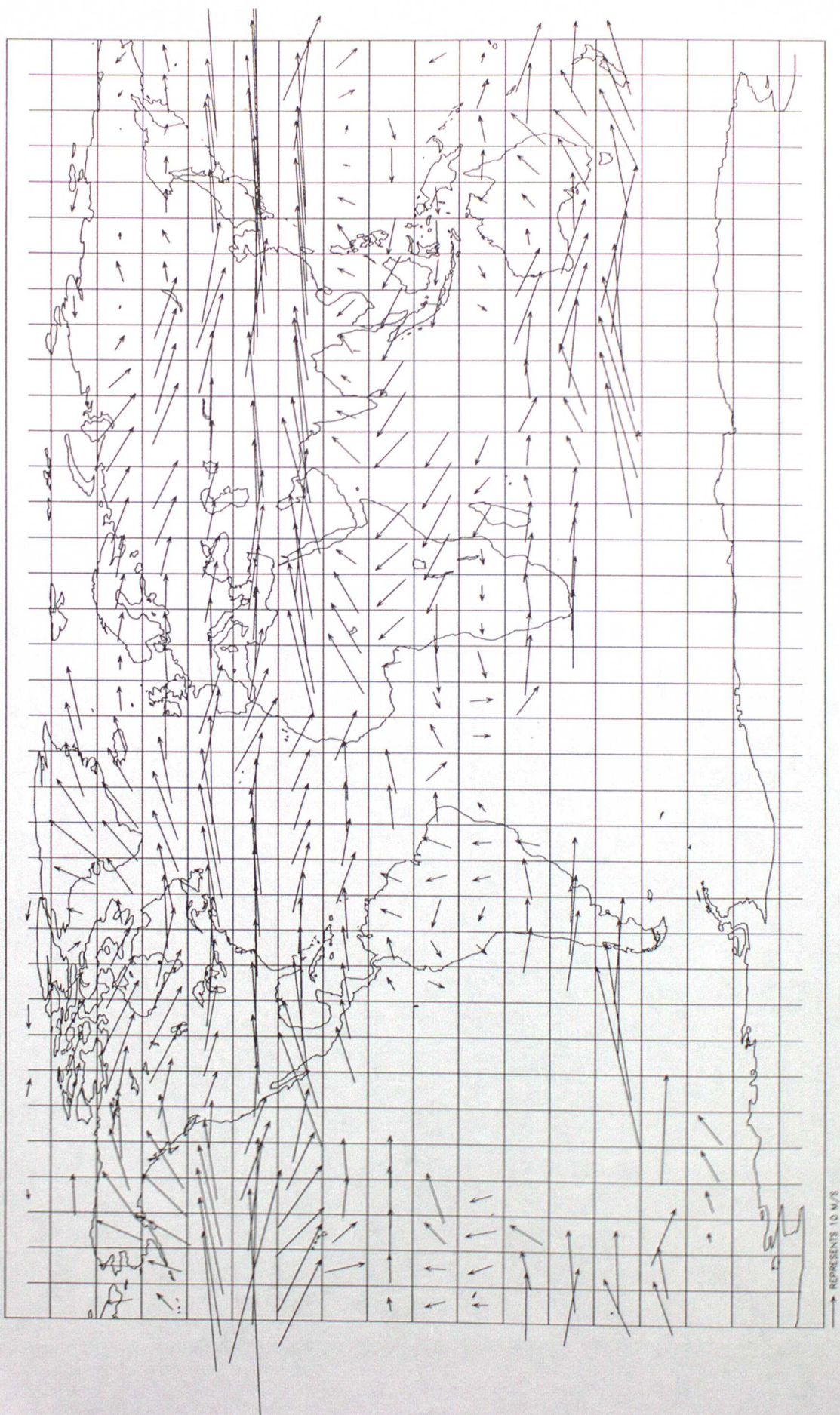


FIGURE 4B

AIRCRAFT MEAN WINDS BETWEEN 1000 AND 301 HPA

JANUARY 2001

OBSERVATIONS WITH O-B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED

VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

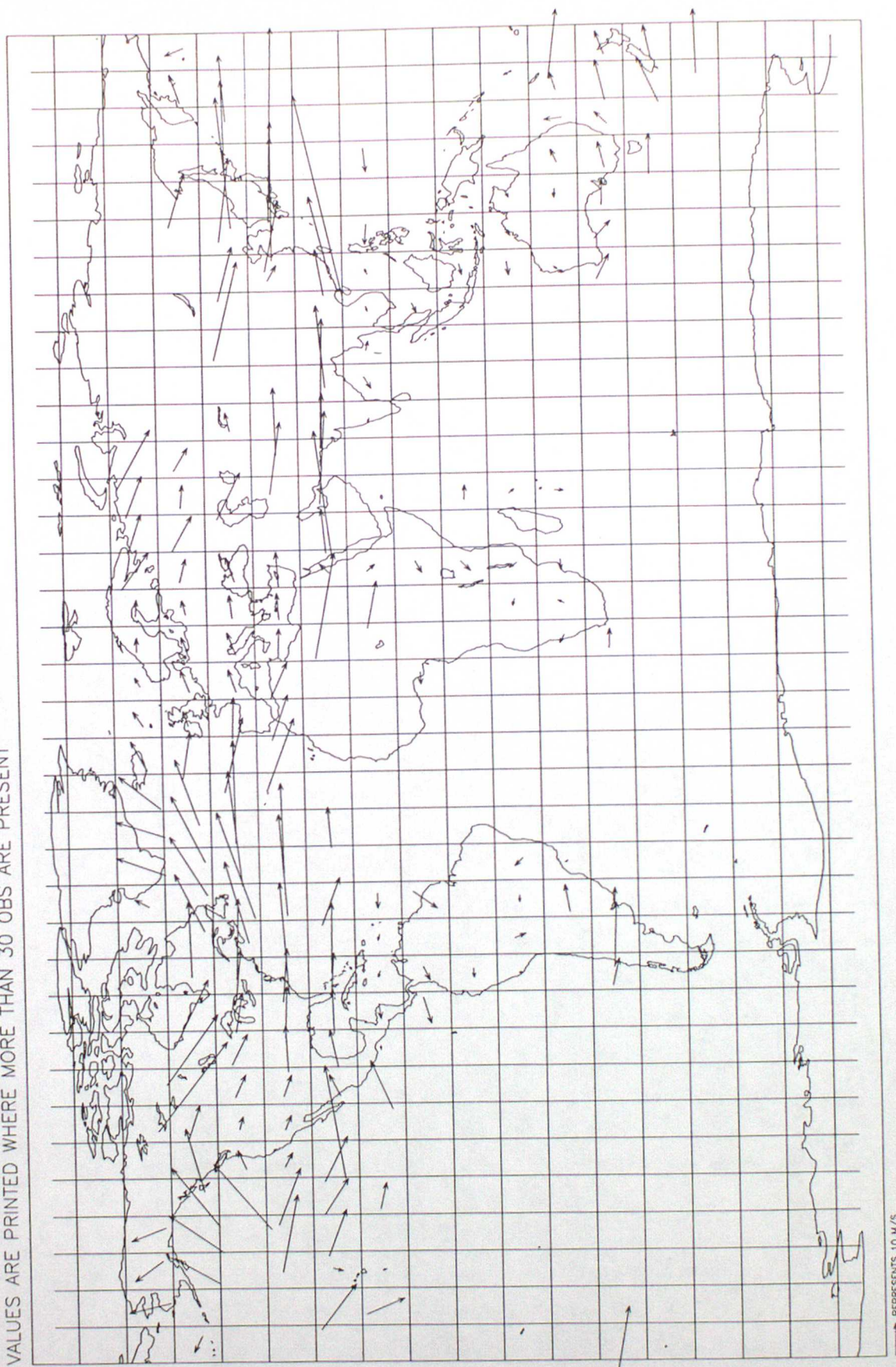


FIGURE 5A

AIRCRAFT MEAN O-B WINDS BETWEEN 300 AND 150 HPA

JANUARY 2001

OBSERVATIONS WITH O-B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

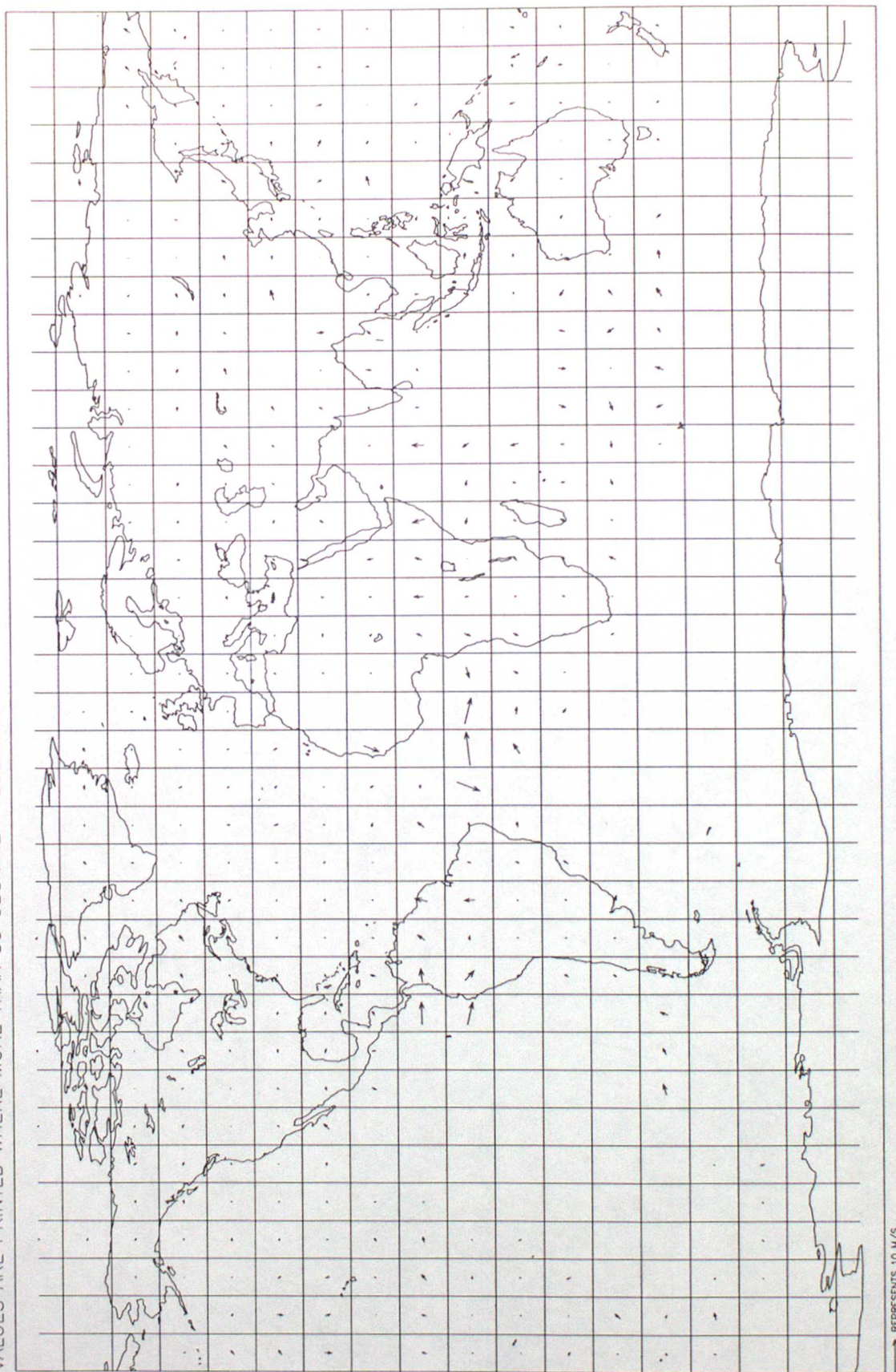
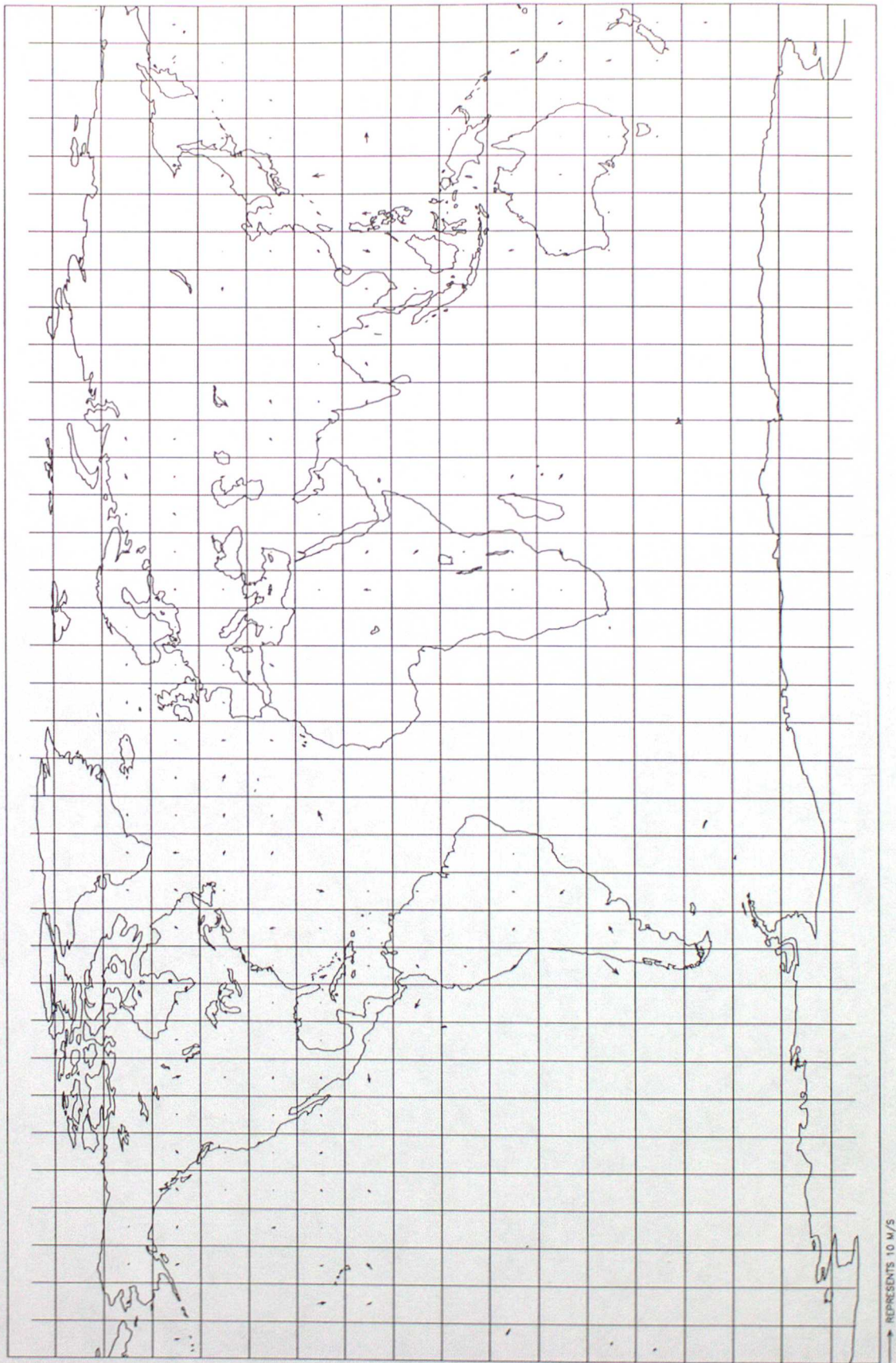


FIGURE 5B

AIRCRAFT MEAN O-B WINDS BETWEEN 1000 AND 301 HPA

JANUARY 2001

OBSERVATIONS WITH O-B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT



AIRCRAFT : MEAN O-B SPEEDS (M/S) 300 - 150 HPA

JANUARY 2001

OBSERVATIONS WITH O-B VECTOR DIFFERENCE > 60 MPS EXCLUDED

VALUES ARE PRINTED WHERE > 30 OBS ARE PRESENT

FIGURE 6A

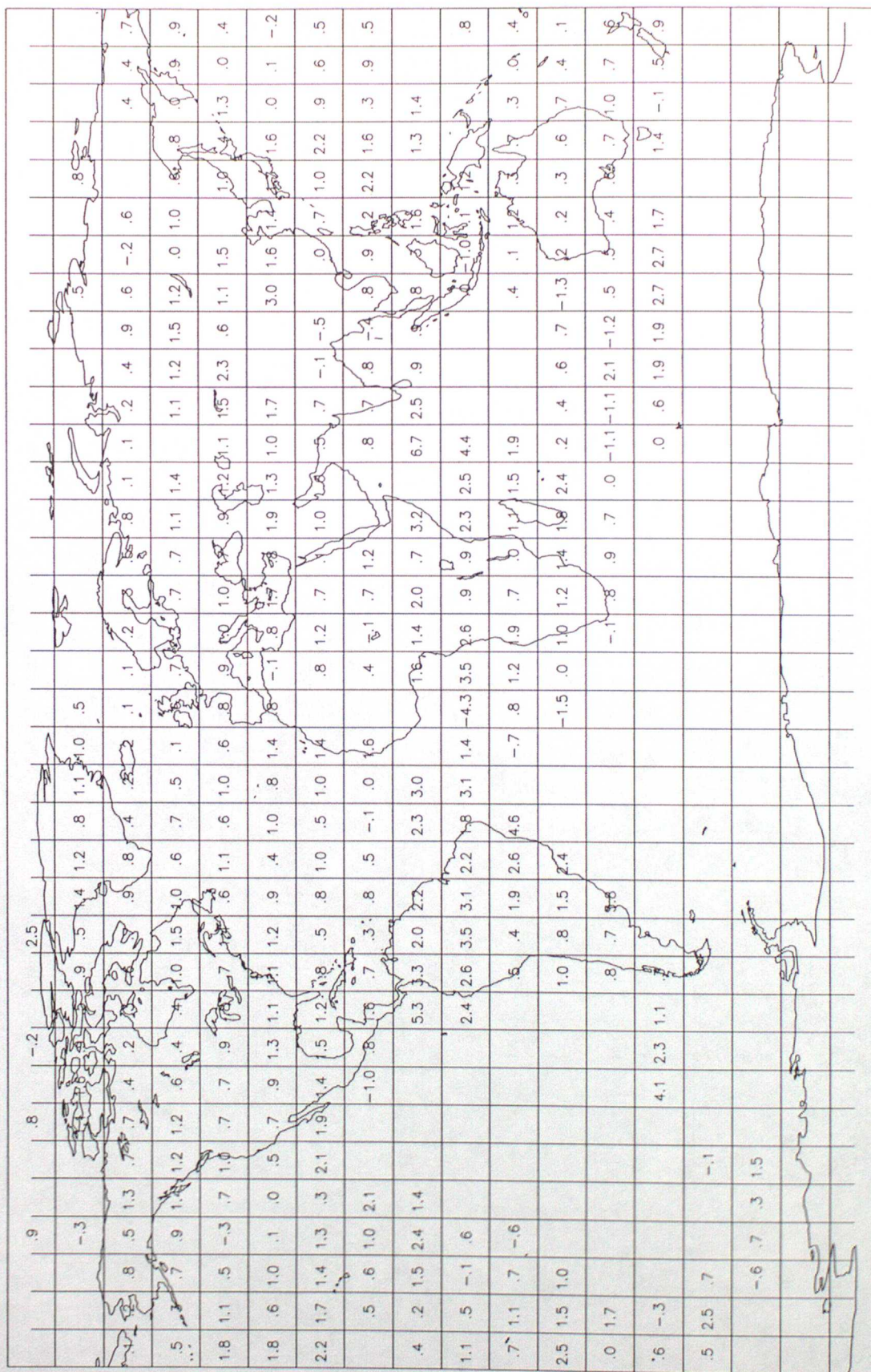
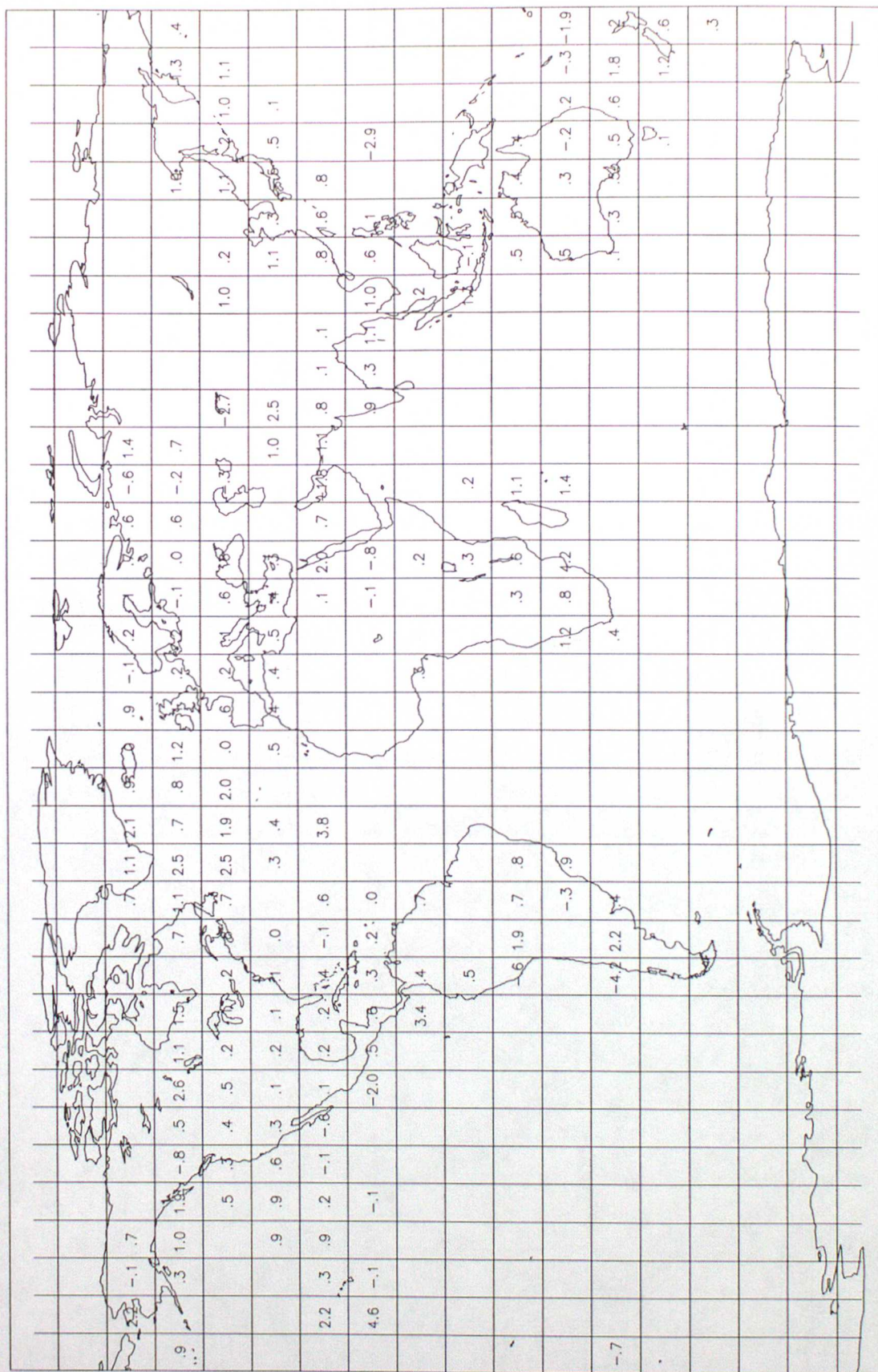


FIGURE 6B

AIRCRAFT : MEAN O-B SPEEDS (M/S) 1000 - 301 HPA
 JANUARY 2001
 OBSERVATIONS WITH O-B VECTOR DIFFERENCE > 60 MPS EXCLUDED
 VALUES ARE PRINTED WHERE > 30 OBS ARE PRESENT

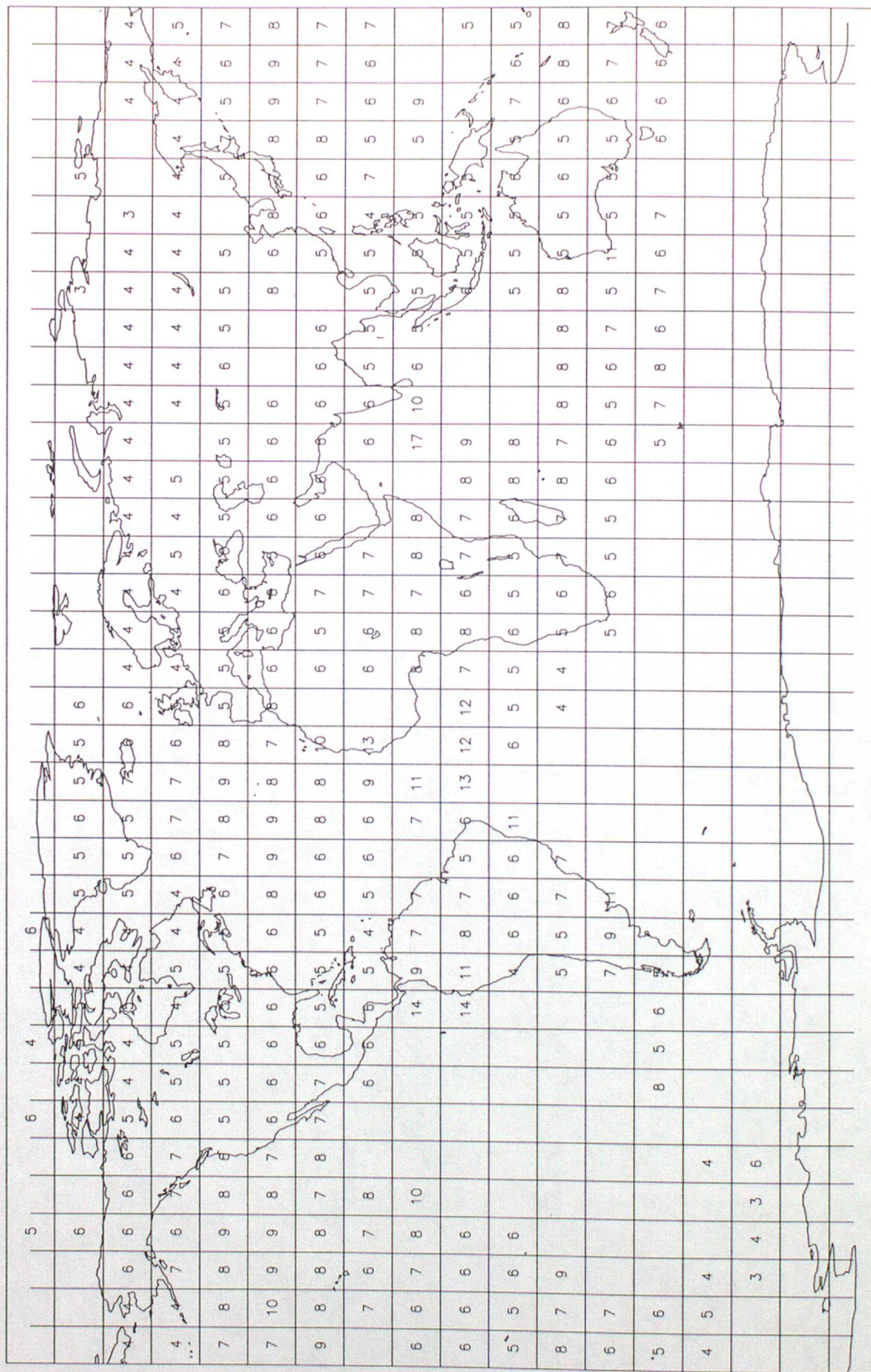


AIRCRAFT : RMS O-B VECTOR (M/S) 300 - 150 HPA

JANUARY 2001

OBSERVATIONS WITH O-B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED
VALUES ARE PRINTED WHERE > 30 OBS ARE PRESENT

FIGURE 7A



AIRCRAFT : RMS O-B VECTOR (M/S) 1000 - 301 HPA

FIGURE 7B

JANUARY 2001

OBSERVATIONS WITH O-B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED
VALUES ARE PRINTED WHERE > 30 OBS ARE PRESENT

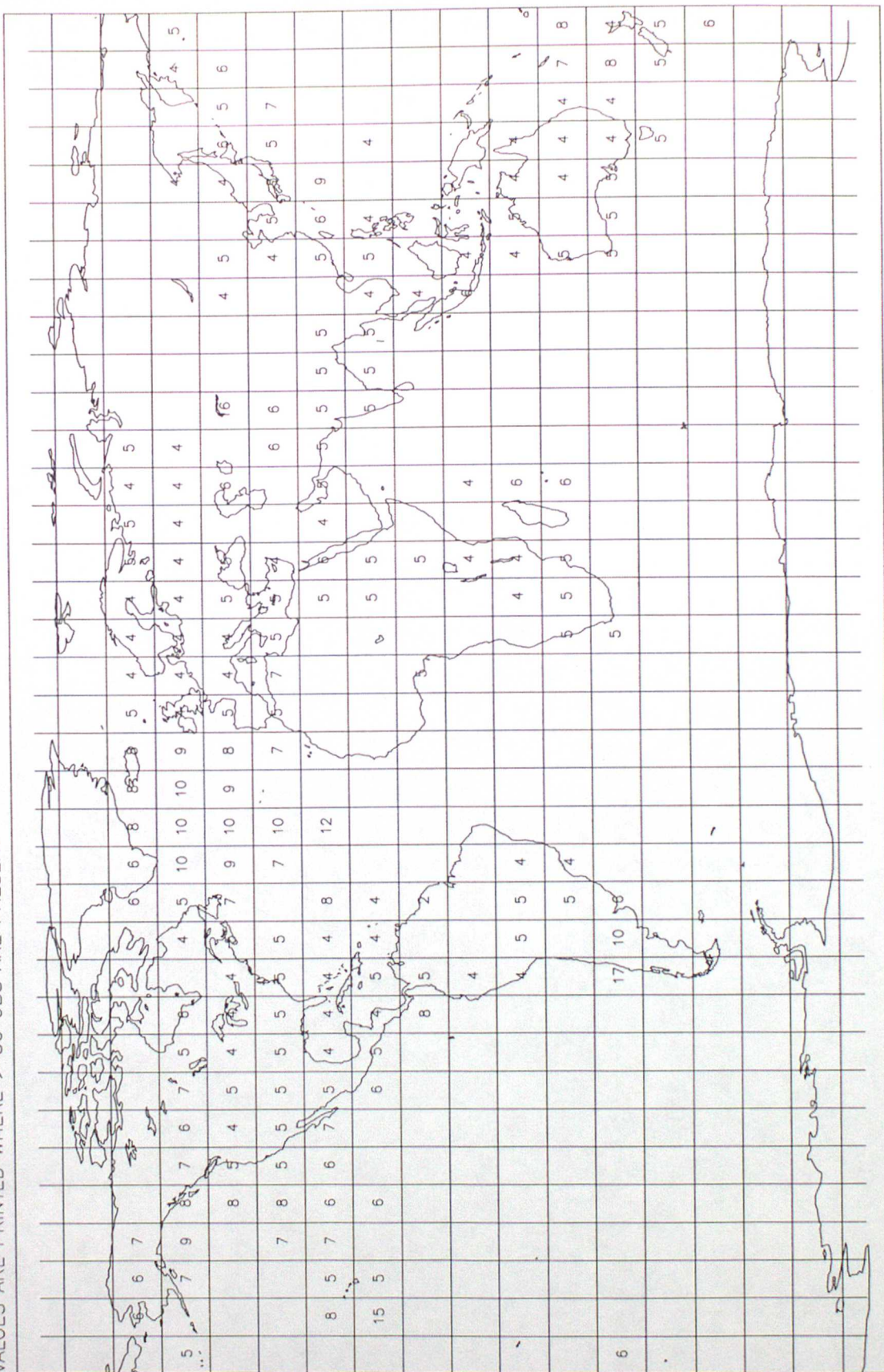


TABLE 5

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH: January 2001

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:90°N - 90°S, 180°W - 180°E.
Standard of comparison		:Background field from UKMO global model.
Observation times		:00 UTC and 12 UTC.
Level(s) monitored		:Standard levels between 1000.0 - 30.0 hPa
Element monitored		:GEOPOTENTIAL HEIGHT IN metres
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:% REJ	:Percentage of observations rejected by quality control at level shown during period excluding those with gross errors.
	:SD	:SD of difference of observations from background values at level shown excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values at level shown excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.
	:NUM LEVELS	:Number of levels satisfying selection criteria.
GROSS ERROR LIMITS	:Defined in Appendix I.1	
SELECTION CRITERIA	: ≥3 levels with ≥10 observations and ≥ 100 m weighted RMS.	

ONLY THE WORST LEVEL IS SHOWN WITH UNWEIGHTED RMS

WMO IDENT	OBS TIME	ELM	LEV	LAT/LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS	NUM LEVELS
22820	00	Z	50	62/ 34	13	0	107.2	123.8	163.8	5
24125	12	Z	700	68/ 112	20	0	13.8	-43.8	46.0	4
24944	00	Z	850	60/ 120	31	0	15.3	-32.0	35.5	5
24959	00	Z	500	62/ 130	31	0	11.5	-48.3	49.6	4
25703	12	Z	300	63/ 152	29	0	31.7	-70.8	77.5	4
29862	00	Z	850	54/ 91	17	0	11.2	-36.9	38.6	4
32098	00	Z	100	49/ 143	28	1	39.9	108.7	115.8	4
33345	00	Z	70	50/ 31	24	0	18.7	-153.2	154.4	6
33631	00	Z	70	49/ 22	23	0	22.6	-140.3	142.1	5
33946	00	Z	50	45/ 34	16	0	97.2	155.2	183.2	5
42101	12	Z	30	30/ 76	16	0	128.2	248.5	279.6	4
42314	12	Z	100	27/ 95	11	0	125.3	-131.8	181.9	7
42369	00	Z	100	27/ 81	13	2	75.0	-105.2	129.2	6
42369	12	Z	150	27/ 81	20	0	79.3	-76.3	110.1	5
42379	00	Z	30	27/ 83	14	0	132.7	123.6	181.3	4
42397	00	Z	150	27/ 88	10	0	71.5	-131.1	149.3	6
42397	12	Z	150	27/ 88	12	1	88.2	-106.5	138.3	6
42647	12	Z	100	23/ 73	10	1	132.3	122.4	180.2	7
42724	00	Z	30	24/ 91	11	0	119.6	177.2	213.8	6
42724	12	Z	150	24/ 91	21	1	57.4	-80.2	98.7	6
42867	12	Z	50	21/ 79	20	0	114.3	160.2	196.8	4
42971	00	Z	30	20/ 86	17	1	110.2	203.2	231.2	7
43003	12	Z	200	19/ 73	13	1	38.0	181.5	185.4	5
43014	12	Z	150	20/ 75	17	0	65.8	76.0	100.6	4
43192	00	Z	100	15/ 74	19	0	86.3	-102.1	133.7	6
43192	12	Z	50	15/ 74	12	0	65.8	161.0	173.9	6
43285	00	Z	30	13/ 75	13	0	138.6	167.7	217.5	7
43285	12	Z	50	13/ 75	12	0	94.6	200.7	221.9	4
43353	00	Z	150	10/ 76	23	0	72.8	-70.5	101.3	4
43371	00	Z	150	8/ 77	18	0	59.3	-98.3	114.8	6
50557	00	Z	1000	49/ 125	29	1	24.6	-25.5	35.4	4
53463	00	Z	1000	41/ 112	28	1	35.0	18.4	39.5	8
53463	12	Z	1000	41/ 112	30	0	39.5	11.6	41.2	9
83566	12	Z	1000	-20/ -44	30	0	6.8	-40.9	41.5	4
83746	12	Z	50	-23/ -43	2	0	9.5	166.5	166.8	4
84628	12	Z	850	-12/ -77	7	0	9.3	-70.9	71.5	7
91366	00	Z	50	9/ 168	19	9	51.5	318.6	322.7	8
97180	00	Z	200	-5/ 120	13	0	90.8	-89.0	127.1	7

ALL HOURS

ALL HOURS
10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS

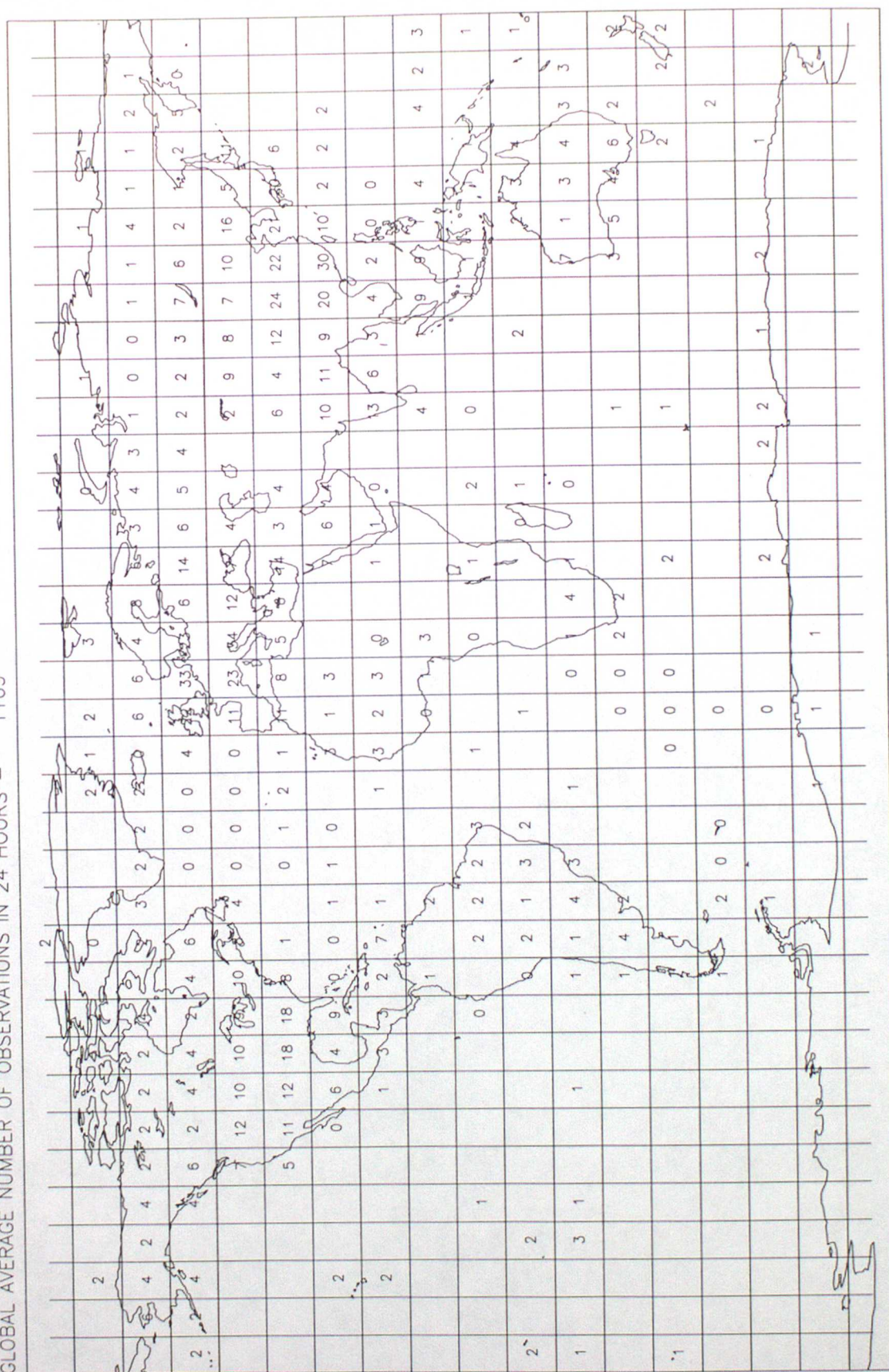
 GLOBAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS - | 1169 |

TABLE 6

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH: January 2001

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:90°N - 90°S, 180°W - 180°E.
Standard of comparison		:Background field from UKMO global model.
Observation times		:00 UTC and 12 UTC.
Level(s) monitored		:Standard levels between 1000.0 - 100.0 hPa
Element monitored		:VECTOR WIND in m s^{-1}
Parameters monitored		
	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:% REJ	:Percentage of observations rejected by quality control at level shown during period excluding those with gross errors.
	:UBIAS,VBIAS	:Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.
	:NUM LEVELS	:Number of levels satisfying selection criteria.
GROSS ERROR LIMITS		:Defined in Appendix I.2
SELECTION CRITERIA		: ≥ 10 observations and $\geq 15 \text{ m s}^{-1}$ RMS vector wind.

ONLY THE STANDARD LEVEL BETWEEN 1000 - 100 hPa WITH HIGHEST RMS IS SHOWN

WMO IDENT	OBS TIME	ELM	LEV	LAT/LONG	NUM OBS	NUM GROSS	% REJ	UBIAS	VBIAS	RMS	LEVELS
PSPIU	00	V	100	-5/ -81	30	0	100	2.1	-4.3	22.6	3
PSPIU	12	V	100	-5/ -81	30	0	100	-4.6	1.2	21.9	3
40375	00	V	200	28/ 37	23	1	100	-4.5	4.6	15.3	1
40375	12	V	250	28/ 37	15	0	100	-1.8	8.3	26.2	1
40394	00	V	150	27/ 42	13	0	7	-4.3	4.6	17.0	1
42182	00	V	300	29/ 77	25	0	48	0.1	-3.4	16.7	1
42182	12	V	200	29/ 77	11	0	63	1.5	-10.5	28.7	3
42339	00	V	200	26/ 73	9	1	100	-15.7	-9.6	20.5	2
42339	12	V	200	26/ 73	10	1	100	-20.1	-9.4	24.4	3
42369	00	V	200	27/ 81	18	0	100	-16.0	-4.1	22.3	4
42379	00	V	400	27/ 83	18	0	50	-9.3	4.5	17.8	2
42379	12	V	300	27/ 83	13	0	53	-10.3	2.8	16.7	1
42397	00	V	300	27/ 88	19	0	100	-6.8	-10.8	15.5	1
42397	12	V	300	27/ 88	19	0	100	-8.5	-9.3	16.6	1
42410	00	V	400	26/ 92	17	0	100	-16.9	4.4	24.4	3
42492	00	V	150	26/ 85	17	0	29	3.4	15.3	20.8	3
42492	12	V	100	26/ 85	10	1	30	8.9	10.3	20.8	3
42667	12	V	250	23/ 77	10	0	10	-8.2	2.4	15.3	1
42724	00	V	300	24/ 91	24	0	100	-7.7	1.1	16.6	1
42724	12	V	250	24/ 91	13	0	100	-5.0	-7.6	21.2	2
43466	12	V	300	7/ 80	12	0	8	5.7	-2.4	21.5	1
44212	00	V	250	50/ 92	25	0	84	12.7	-7.8	22.9	7
44288	00	V	150	46/ 103	22	0	50	5.7	2.9	19.1	2
55299	12	V	150	31/ 92	24	0	4	0.2	-4.5	23.2	1
56137	12	V	400	31/ 97	31	0	6	-1.1	5.2	15.2	1
56691	00	V	100	27/ 104	25	1	20	-4.0	3.0	19.6	2
56691	12	V	100	27/ 104	21	0	28	4.1	2.8	19.9	2
57993	12	V	100	26/ 115	23	0	13	10.5	0.4	15.5	1
58362	00	V	150	31/ 121	24	0	4	-0.2	2.1	15.8	1
58362	12	V	150	31/ 121	25	0	8	-1.8	2.0	17.5	1
60630	12	V	200	27/ 2	14	0	100	-11.3	-4.1	17.0	1
60760	12	V	200	34/ 8	27	0	3	-3.6	0.1	16.0	3
61017	12	V	400	19/ 13	14	1	78	-14.6	10.8	21.3	1
62337	00	V	200	31/ 34	28	0	100	-5.5	13.5	19.0	2
62337	12	V	200	31/ 34	28	0	96	-9.2	14.6	22.7	4
62378	00	V	200	30/ 31	28	0	100	-11.3	-1.6	18.2	3
62378	12	V	250	30/ 31	31	0	100	-8.9	-2.8	17.0	2
64458	12	V	150	2/ 16	25	0	40	17.8	-6.4	23.0	1
64700	00	V	150	12/ 15	16	0	12	11.8	-9.1	16.8	1
64910	12	V	300	4/ 10	10	0	10	7.9	4.3	19.2	1
65578	00	V	150	5/ -4	12	0	33	17.3	2.0	20.3	1
65578	12	V	150	5/ -4	15	0	40	16.2	-1.5	18.6	1
71801	12	V	150	48/ -53	29	0	17	-3.4	-1.6	15.2	1
72520	12	V	300	40/ 80	29	0	48	0.9	-0.1	18.0	3
80222	12	V	150	5/ -74	10	0	20	8.1	-5.1	15.1	1
97372	00	V	100	-10/ 124	10	0	100	38.0	0.2	38.9	3

FIGURE 9

ALL HOURS

10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS

GLOBAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS - 1396

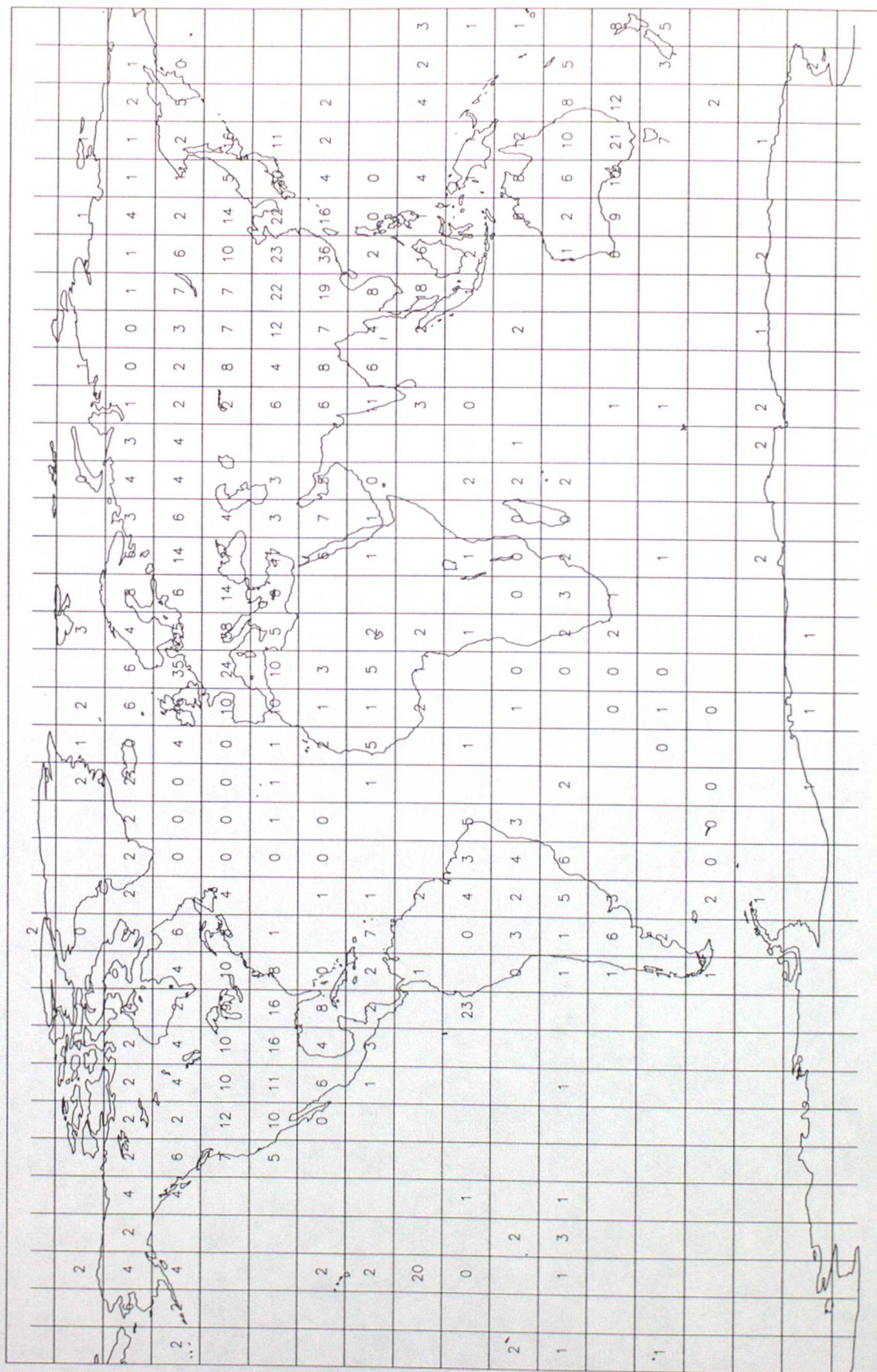


TABLE 7

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH: January 2001

Monitoring procedures

Period	:One calendar month.
Data monitored	:Reports from each unique identifier for radiosonde TEMPs.
Area monitored	:90°N - 90°S, 180°W - 180°E.
Standard of comparison	:Background field from UKMO global model.
Observation times	:00 UTC and 12 UTC.
Level(s) monitored	:Standard levels between 500.0 - 150.0 hPa
Element monitored	:WIND DIRECTION in degrees
Parameters monitored	
	:NUM OBS :Average number of observations at all levels.
	:BIAS :Mean difference of observations from background values from all levels.
	:MAX SPREAD : (For observation - background values) Maximum absolute difference of SD at any level from SD at all levels
	:SD :SD of difference of observations from background values at all levels.
SELECTION CRITERIA	:NUM OBS ≥ 5 , and ABSOLUTE BIAS $\geq 10^\circ$, with SD $< 30^\circ$, and MAX SPREAD $< 10^\circ$

WMO IDENT	OBS TIME	ELM	LAT/LONG	NUM OBS	BIAS	MAX SPREAD	SD
08594	12	DD	17/ -23	22	-11.6	8.2	15.7
17280	00	DD	38/ 40	27	-10.8	2.9	8.7
17280	12	DD	38/ 40	25	-10.7	2.9	8.5
29612	12	DD	55/ 78	29	24.6	4.2	8.6
42397	00	DD	27/ 88	13	11.8	6.7	6.7
42492	00	DD	26/ 85	24	-10.6	2.0	9.7
42492	12	DD	26/ 85	24	-10.0	2.8	11.5
60360	12	DD	37/ 8	16	18.7	4.0	17.7
61995	12	DD	-20/ 57	11	11.6	4.1	20.9
62337	00	DD	31/ 34	28	-19.5	3.7	6.9
62337	12	DD	31/ 34	28	-20.9	7.8	10.9
78866	12	DD	18/ -63	26	-13.0	5.2	12.2
91801	00	DD	-9/-158	10	10.8	5.2	21.9

MONITORING OF SATELLITE WINDS

MONITORING CENTRE: BRACKNELL

MONTH: January 2001

Monitoring procedures

Period	:One calendar month.
Data monitored	:Reports from GOES-8, GOES-10, METEOSAT-5, METEOSAT-7, GMS-5, INSAT.
Standard of comparison	:Background field from UKMO global model.
Selection Criteria	:number of observations > 10.
Data Extracted	:Layer 701 - 1000 hPa 401 - 700 hPa 101 - 400 hPa :Mean wind :Mean observation minus background vector wind differences :Mean observation minus background speed differences :RMS of observation minus background vector differences

AVERAGE DAILY NUMBER OF SATOB OBSERVATIONS BETWEEN 701 AND 1000 HPA FIGURE 10
JANUARY 2001

GLOBAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS = 29771

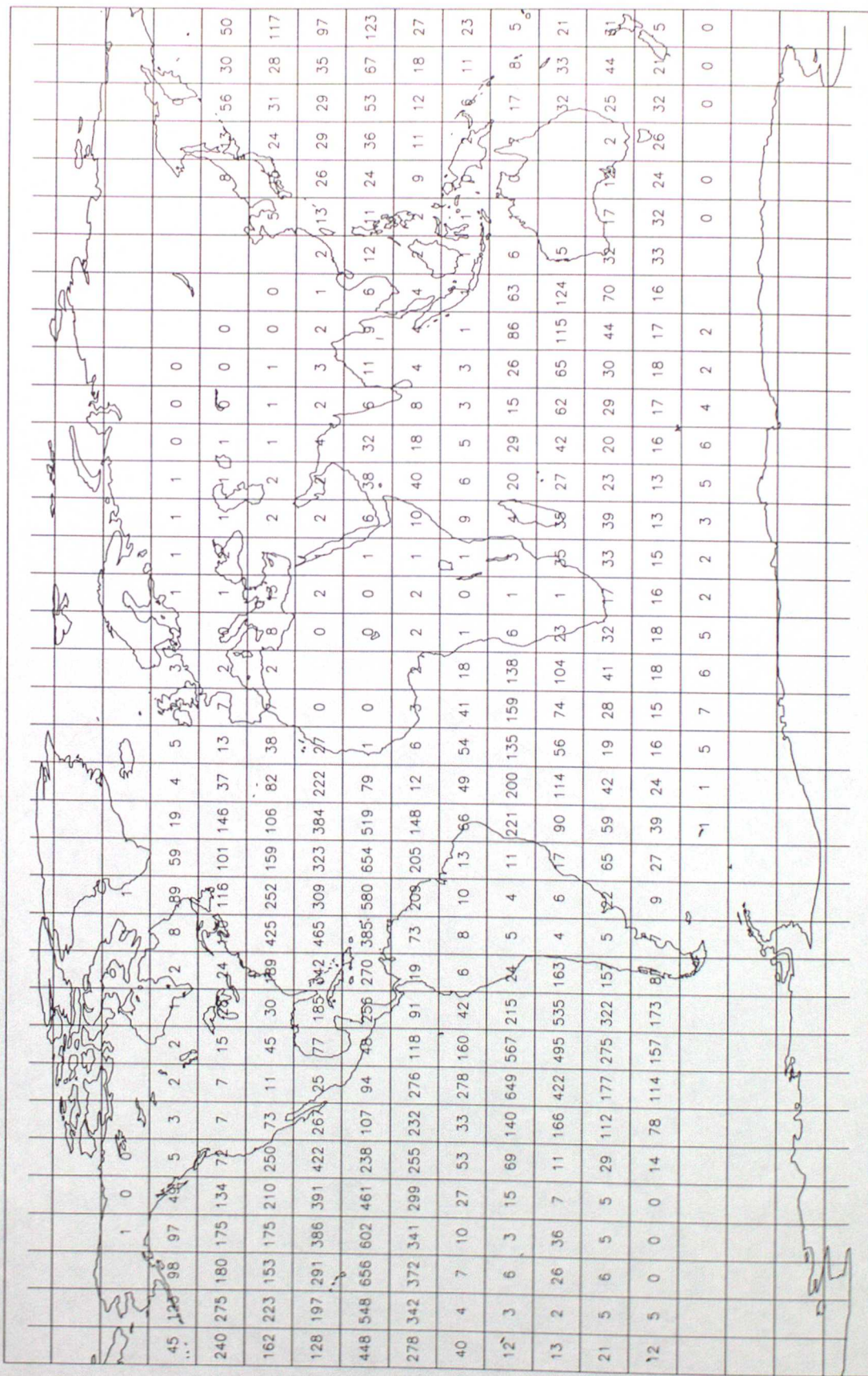


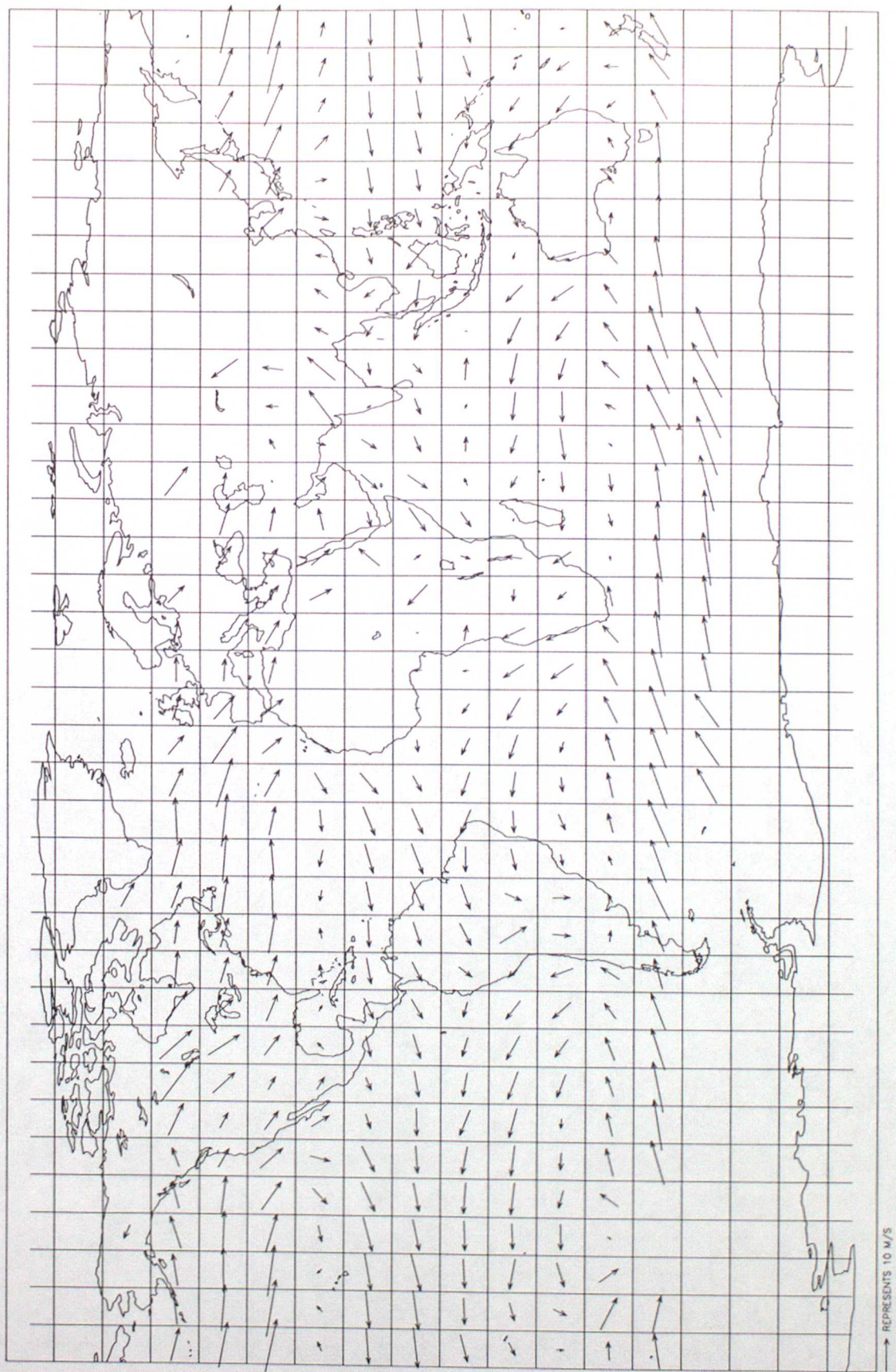
FIGURE 11

SATOB METEOSAT W/V VECTOR MEAN WINDS BETWEEN 701-1000 HPA

JANUARY 2001

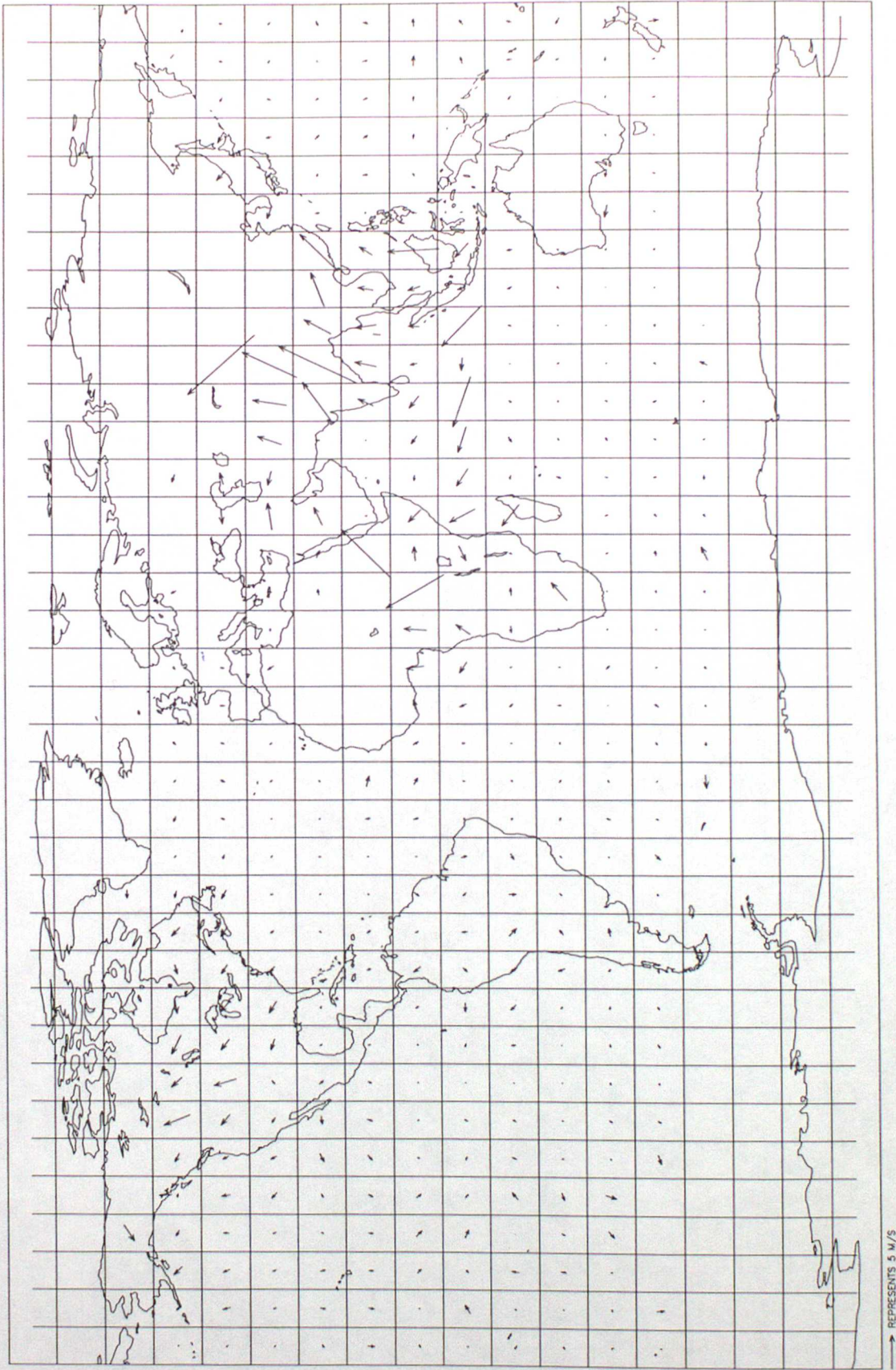
ALL OBSERVATIONS

ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

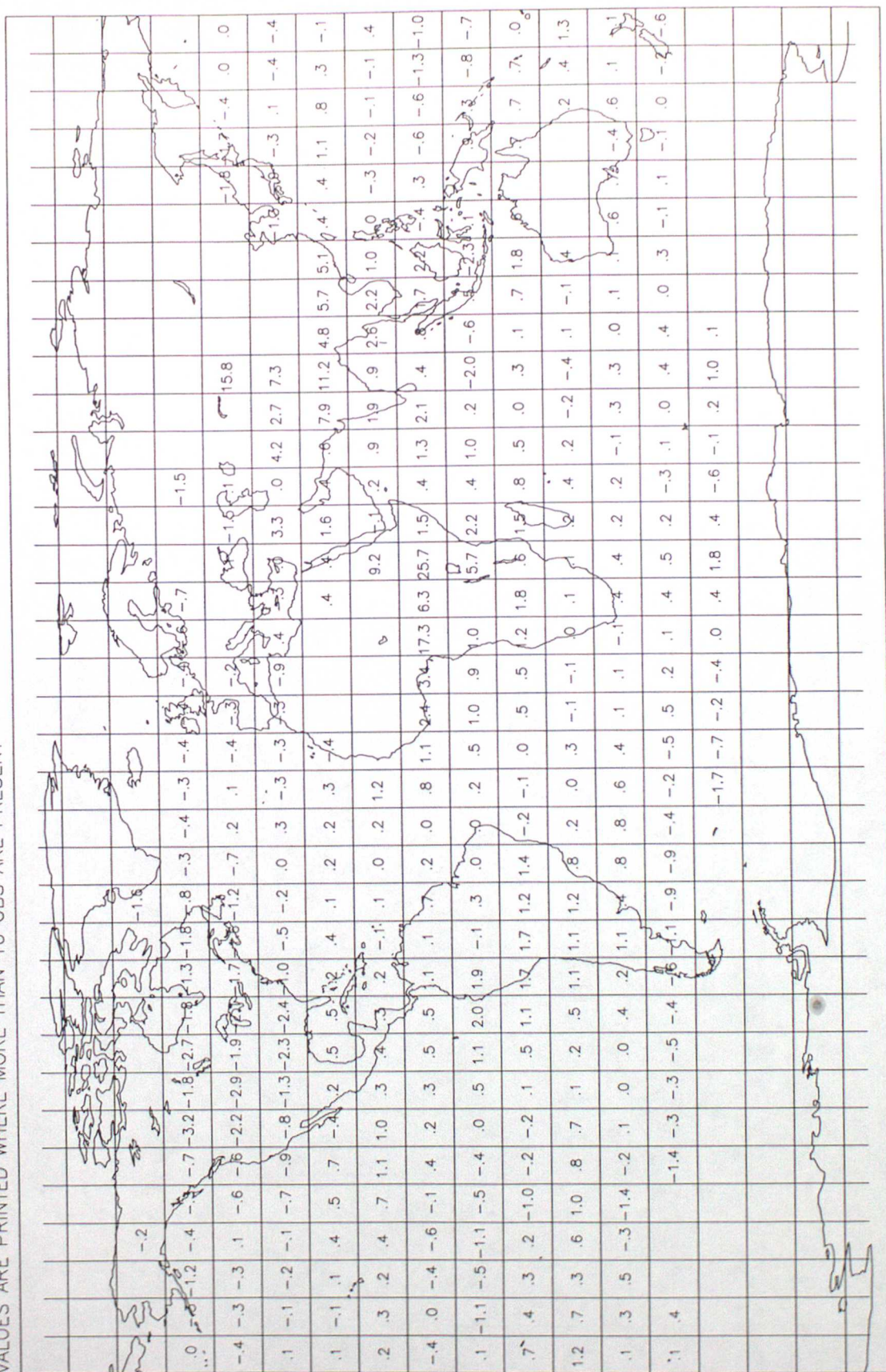


SATOB O-B VECTOR WIND DIFFERENCES BETWEEN 701-1000 HPA
JANUARY 2001
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

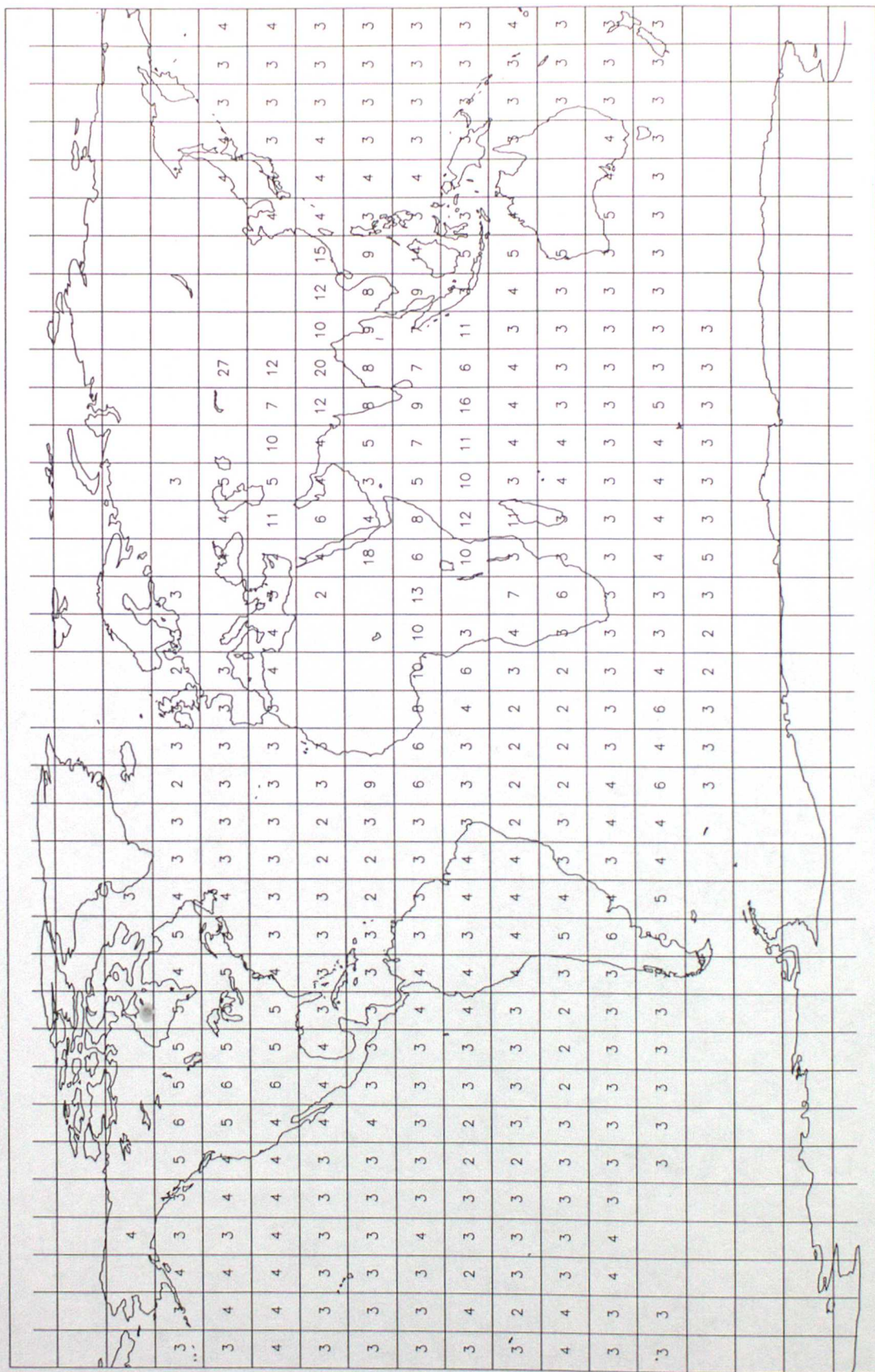
FIGURE 12



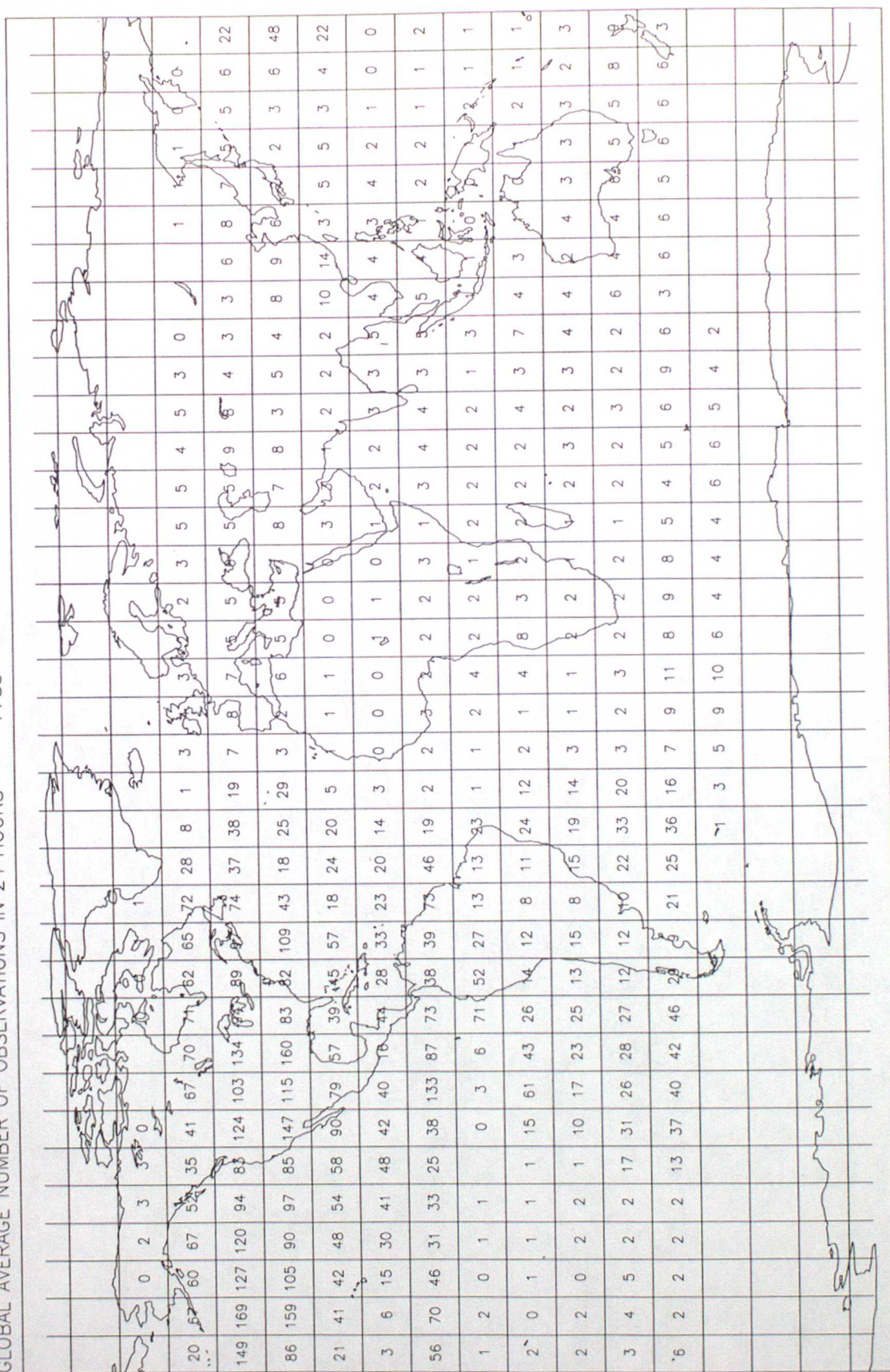
SATOB5 : MEAN O-B SPEED DIFFERENCES (M/S) BETWEEN 701 AND 1000 HPA
JANUARY 2001
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT



SATOB5 : RMS O-B VECTOR DIFFERENCES (M/S) BETWEEN 701 AND 1000 HPA
JANUARY 2001
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT



GLOBAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS = 7785



SATOB VECTOR MEAN WINDS BETWEEN 401-700 HPA
JANUARY 2001
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

FIGURE 16

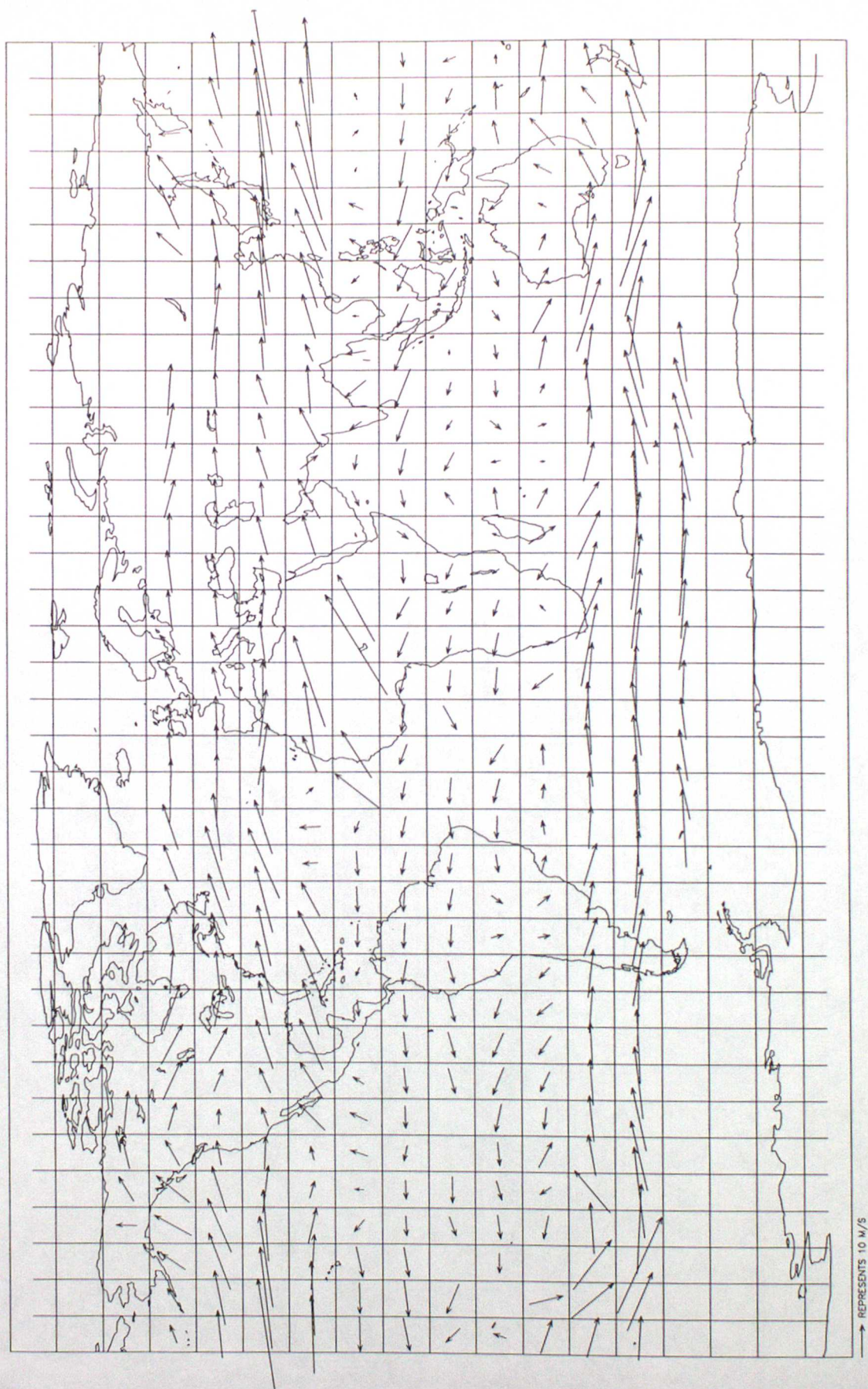
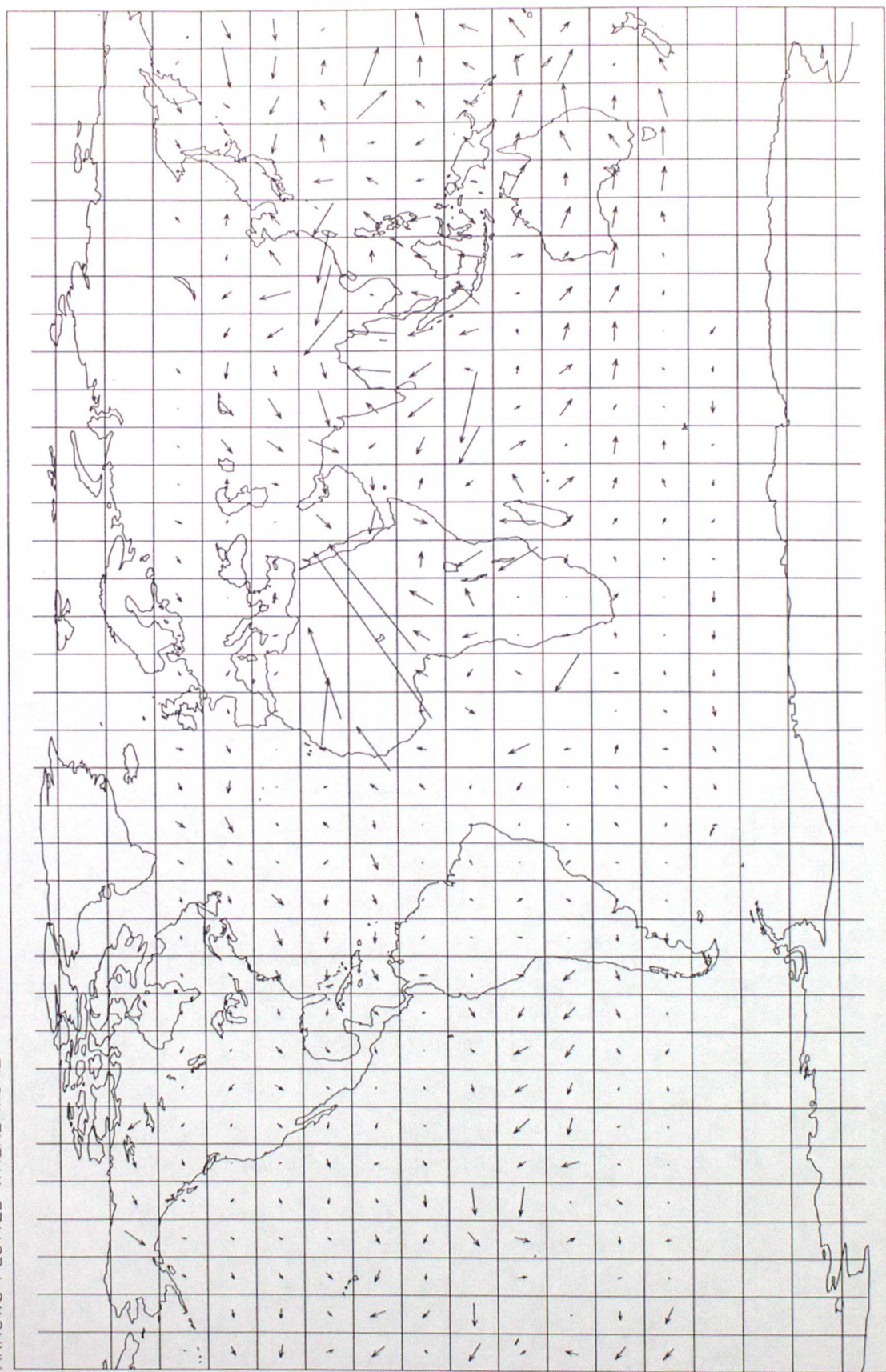


FIGURE 17

SATOB O-B VECTOR WIND DIFFERENCES BETWEEN 401-700 HPA
JANUARY 2001
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT



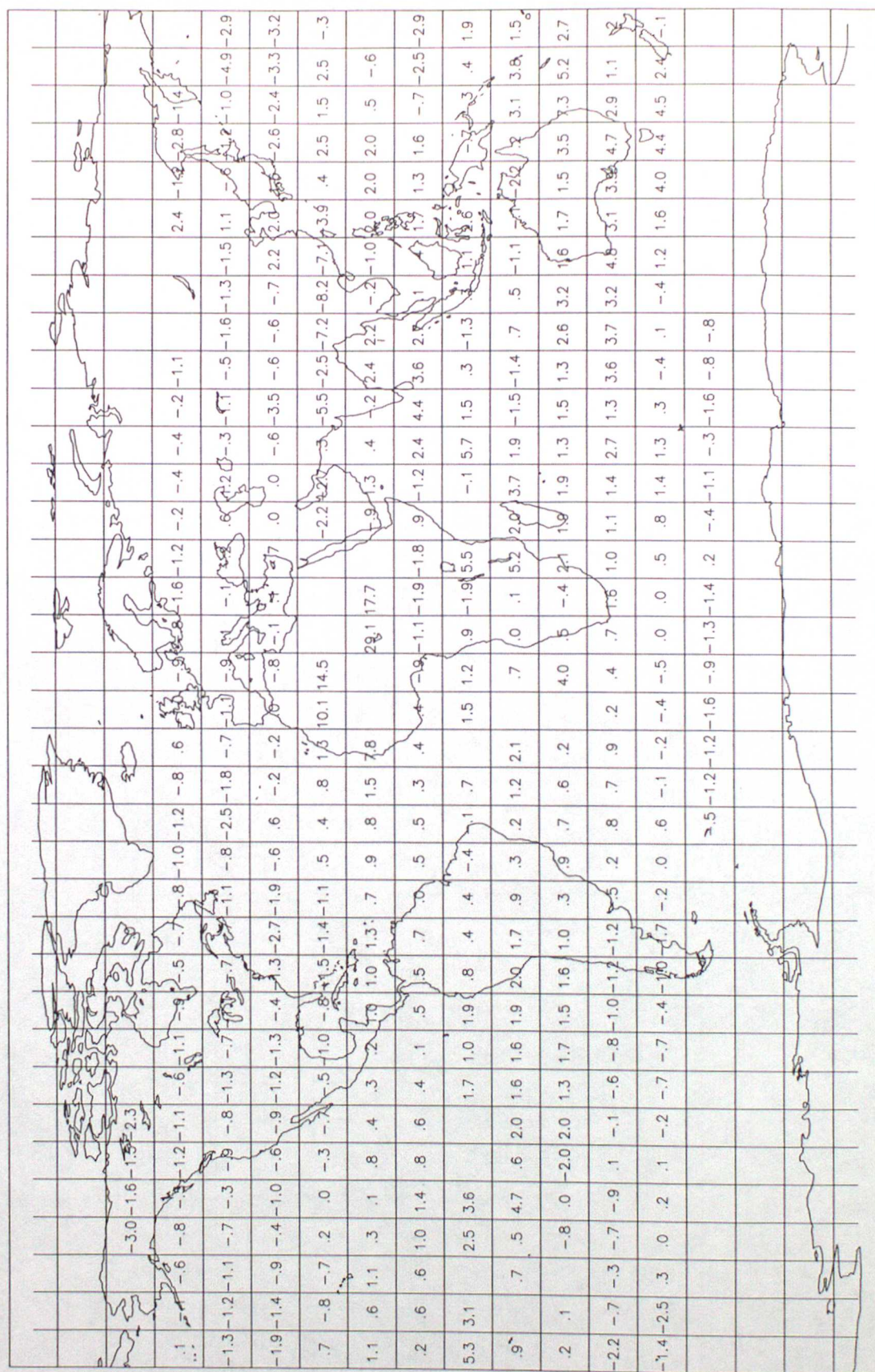
→ REPRESENTS 5 M/S

FIGURE 18

JANUARY 2001

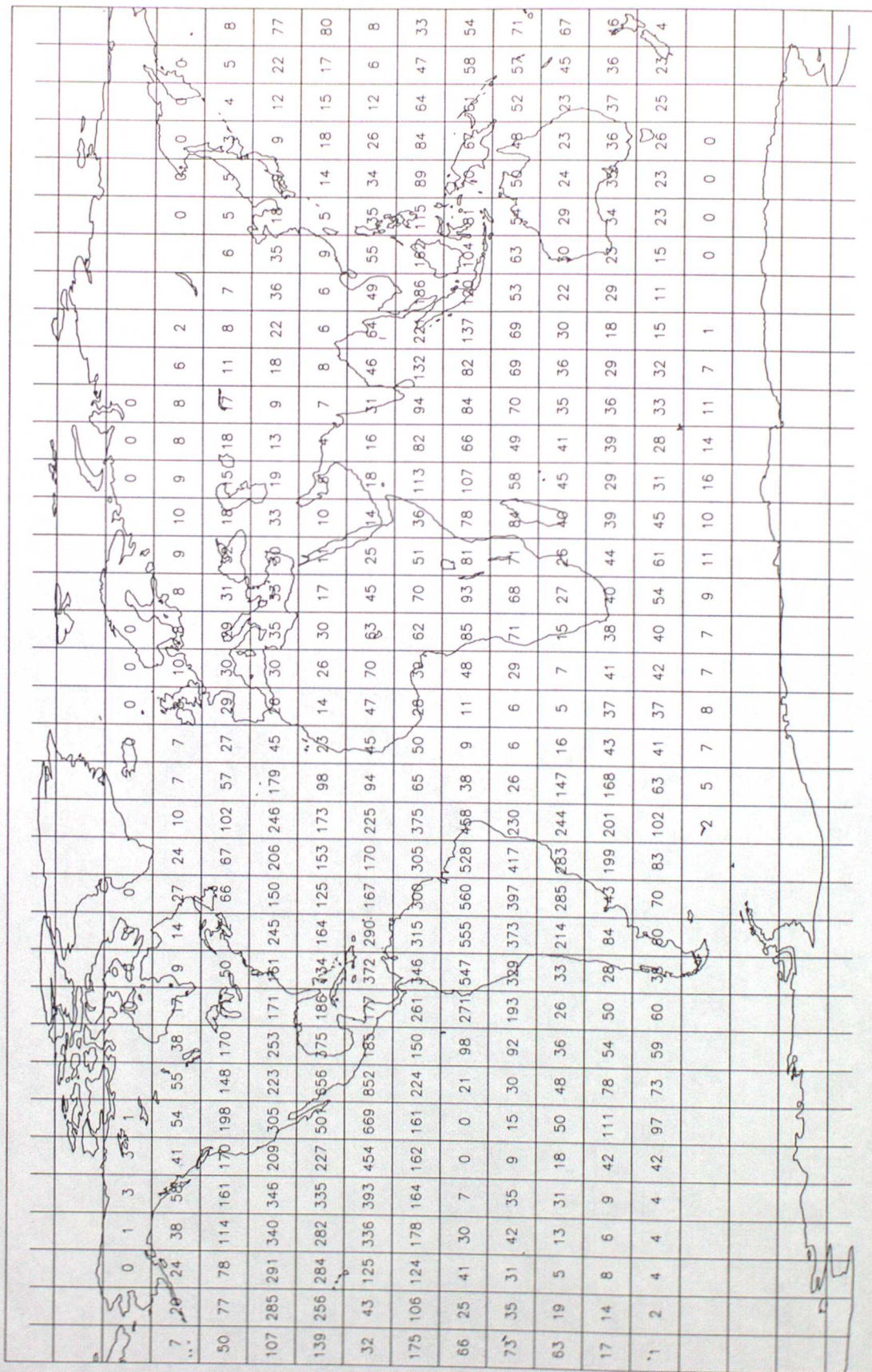
USING ALL OBSERVATIONS

VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT



AVERAGE DAILY NUMBER OF SATOB OBSERVATIONS BETWEEN 101 AND 400 HPA FIGURE 20
JANUARY 2001

GLOBAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS = 35303



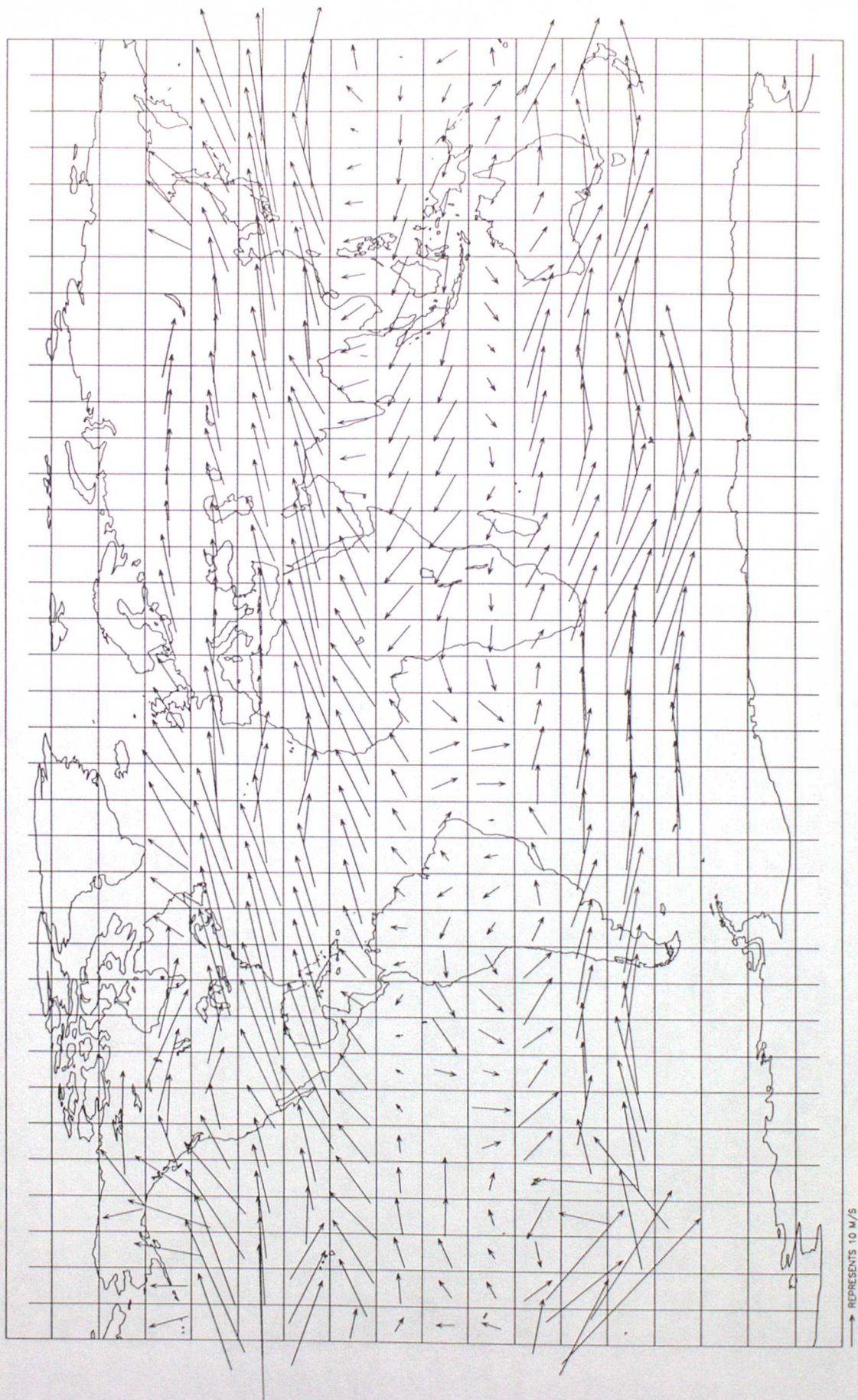
SATOB METEOSAT W/V VECTOR MEAN WINDS BETWEEN 101-400 HPA

JANUARY 2001

ALL OBSERVATIONS

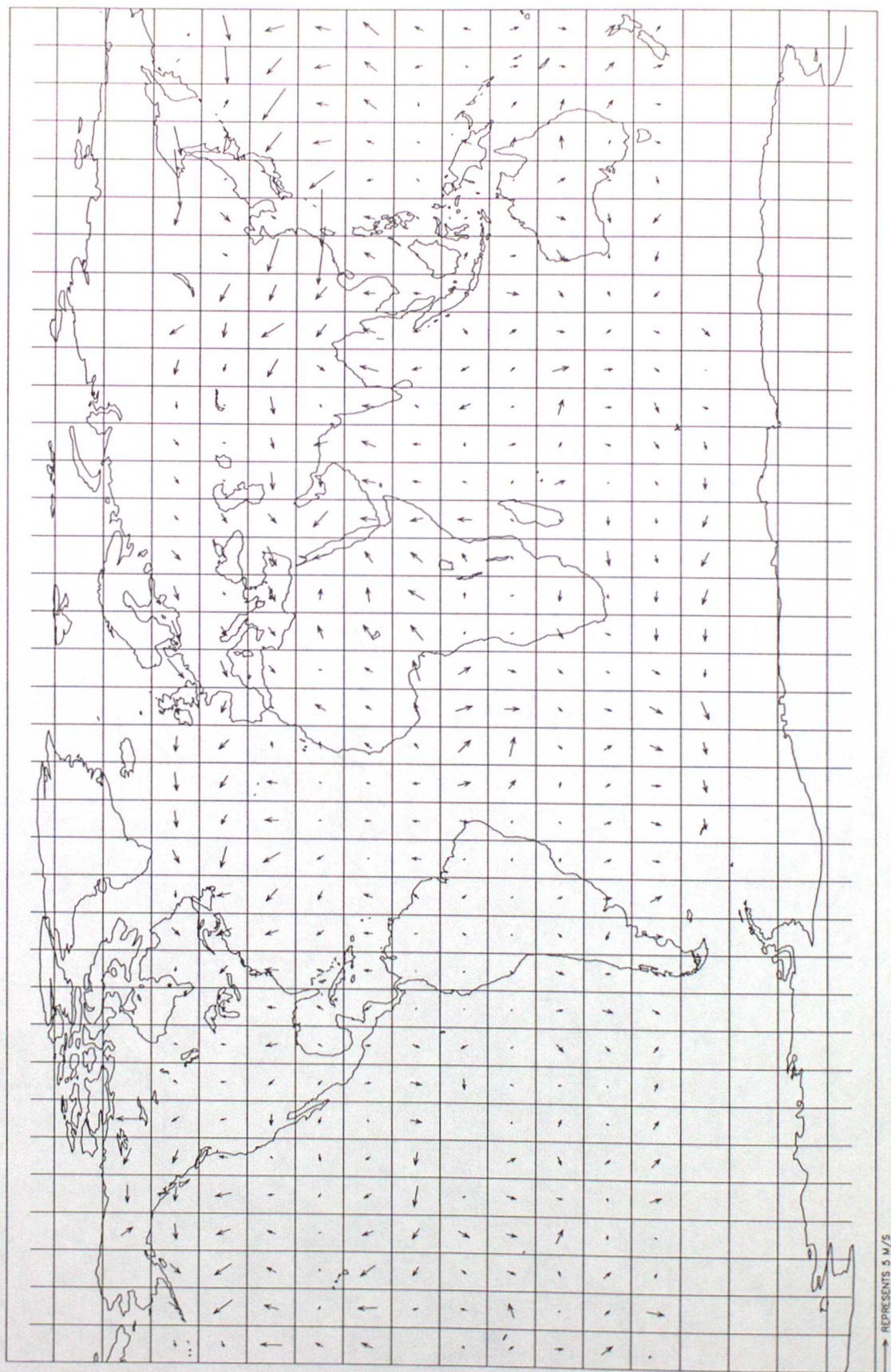
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

FIGURE 21

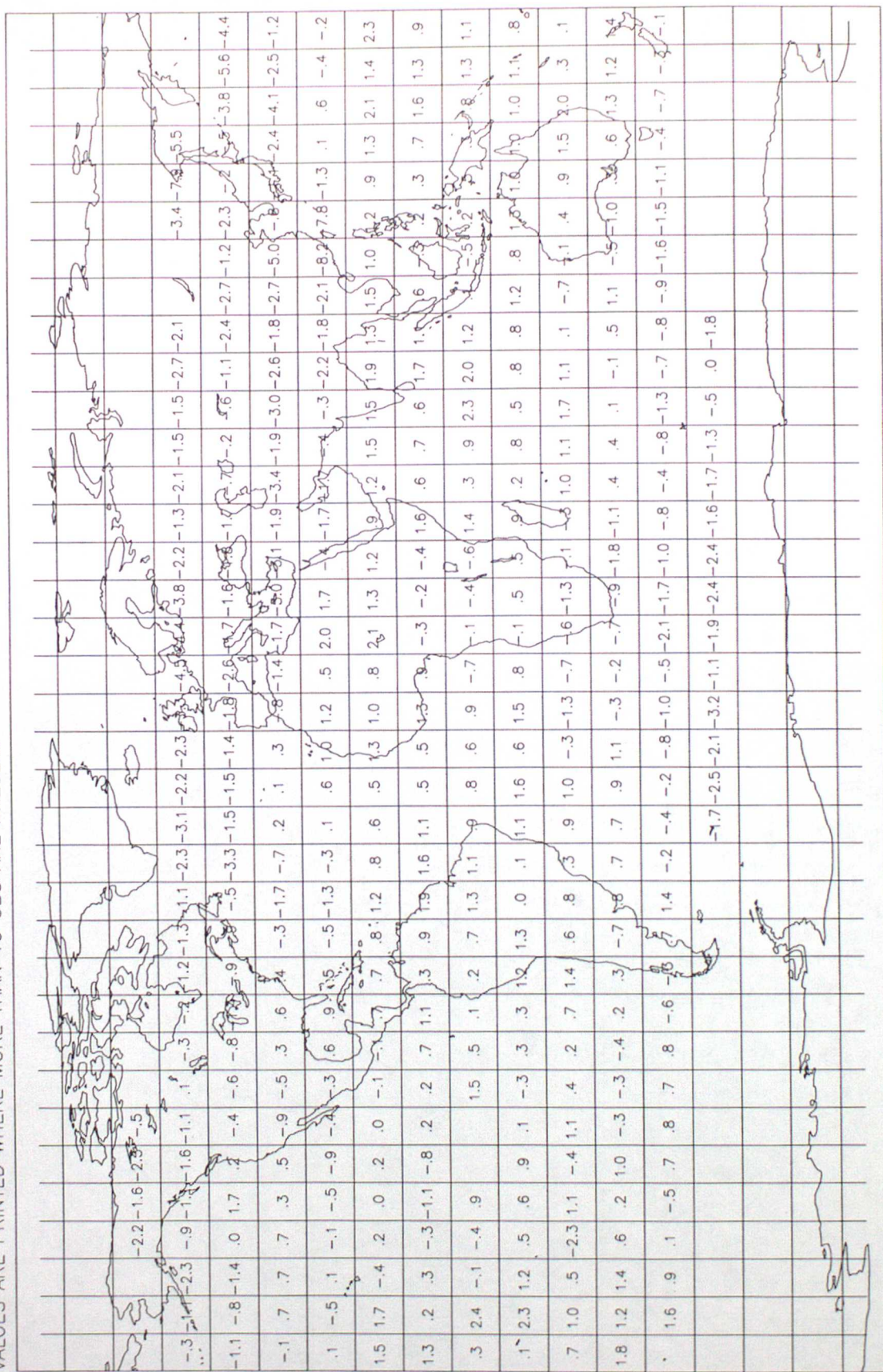


SATOB O-B VECTOR WIND DIFFERENCES BETWEEN 101-400 HPA
JANUARY 2001
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

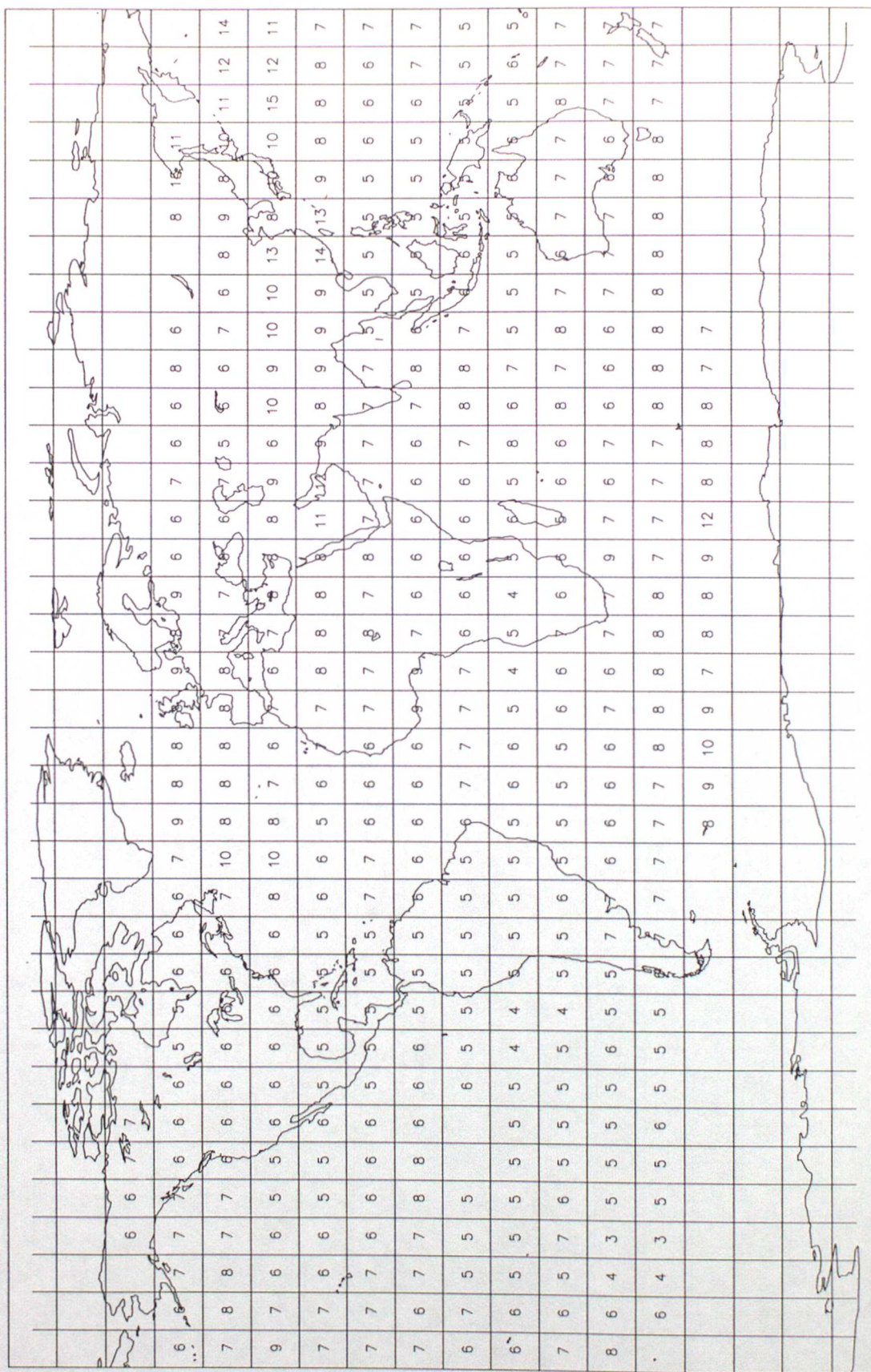
FIGURE 22



SATOB5 : MEAN O-B SPEED DIFFERENCES (M/S) BETWEEN 101 AND 400 HPA
JANUARY 2001
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT



SATOB5 : RMS O-B VECTOR DIFFERENCES (M/S) BETWEEN 101 AND 400 HPA
JANUARY 2001
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT



MONITORING OF SATELLITE TEMPERATURES

MONITORING CENTRE: BRACKNELL

MONTH: January 2001

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from NOAA-15.

Standard of comparison :Background field from UKMO global model.

Selection Criteria :All soundings.

Data Extracted :Sounding channels (and approximate weighting function peaks, hPa)

HIRS8 (Surface)
HIRS15 (700)
HIRS11 (500-700)
HIRS4 (400)
AMSUA5 (700)
AMSUA7 (300)
AMSUA9 (100)

:Mean and standard deviation observation-minus-background brightness temperature differences

FIGURE 25

NOAA-15, USING ALL OBSERVATIONS

GLOBAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS = 668217

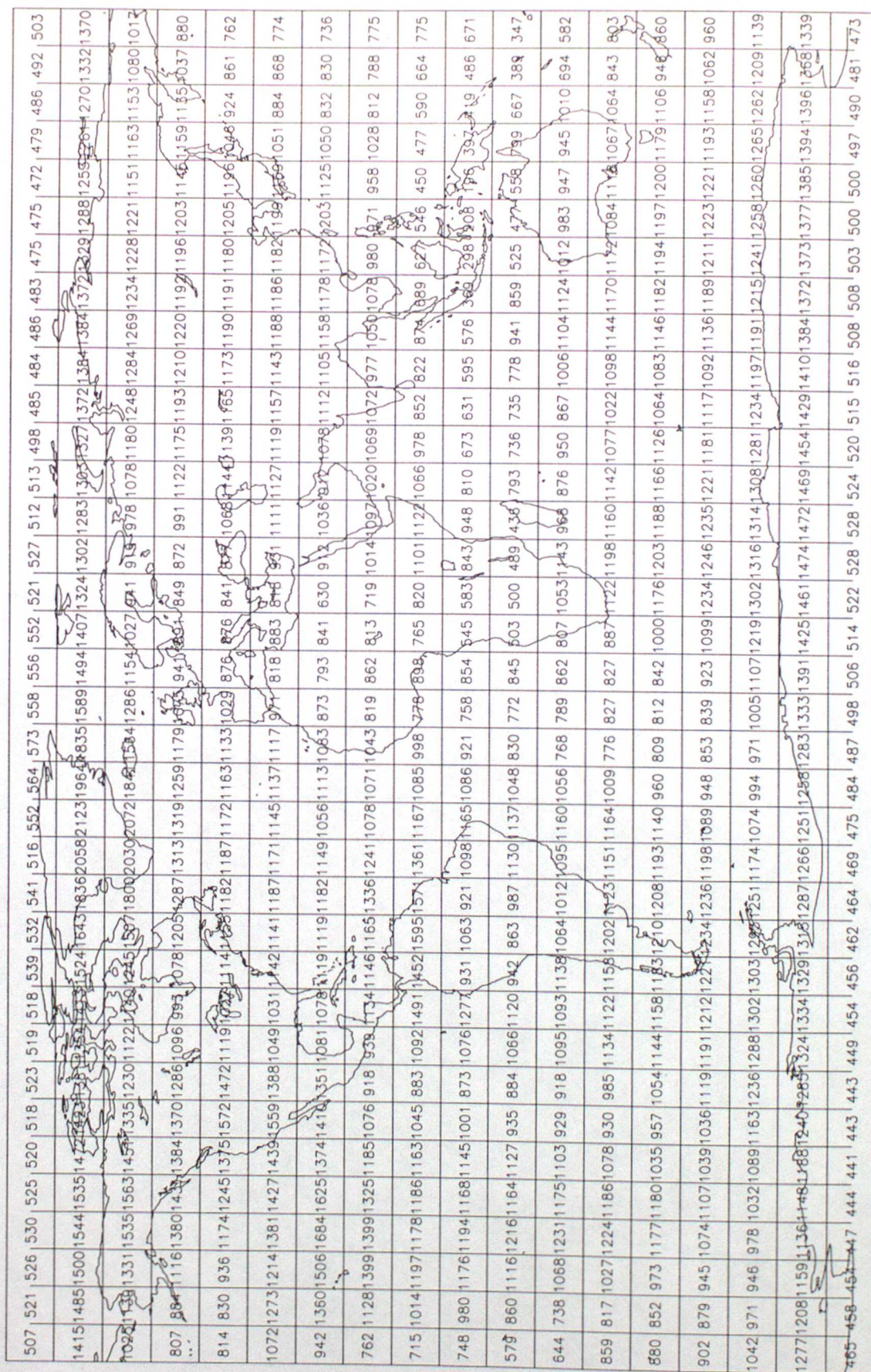
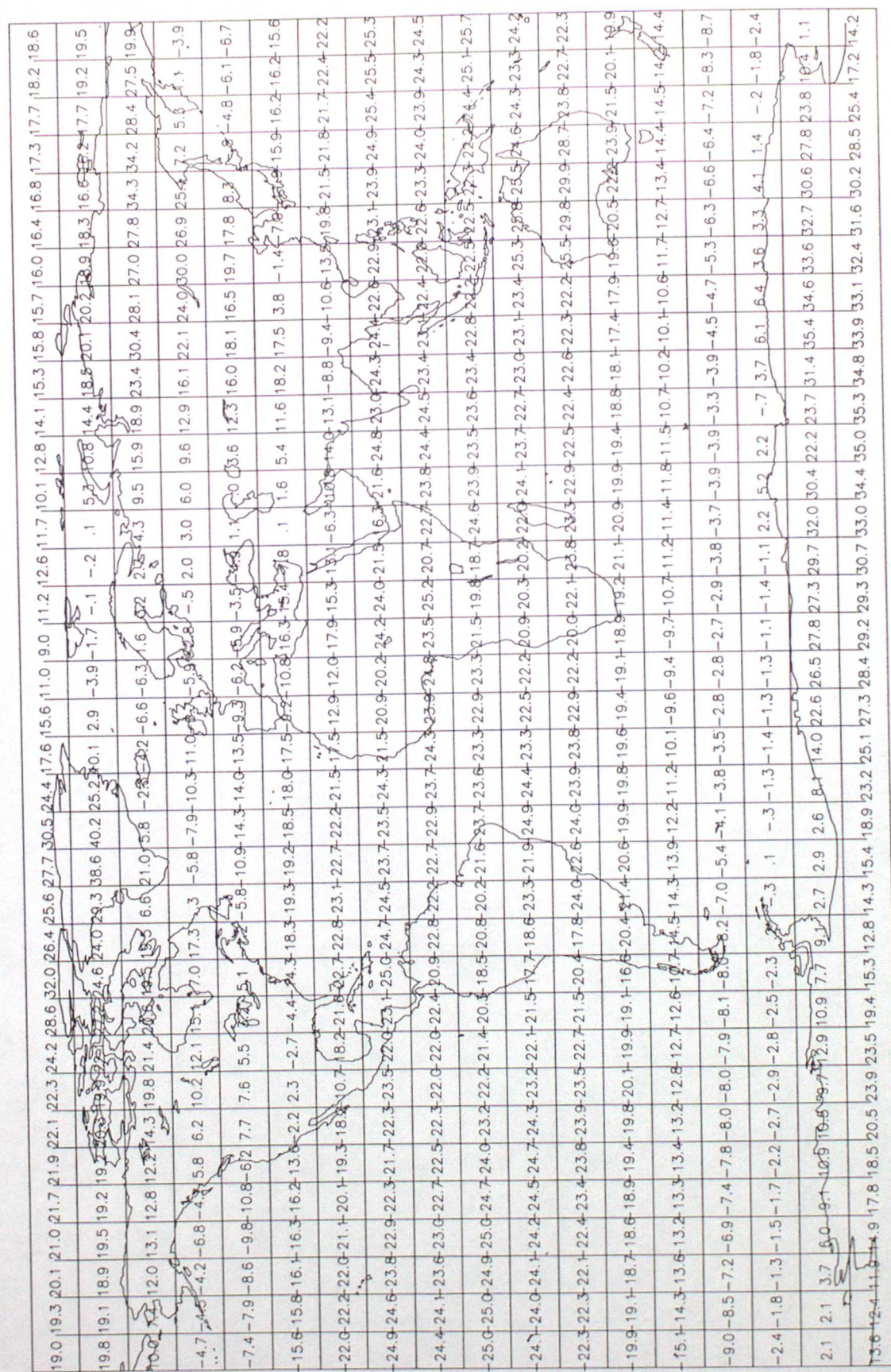


TABLE 1. MEAN O-B BRIGHTNESS TEMPERATURE DIFFERENCES (DEG C)

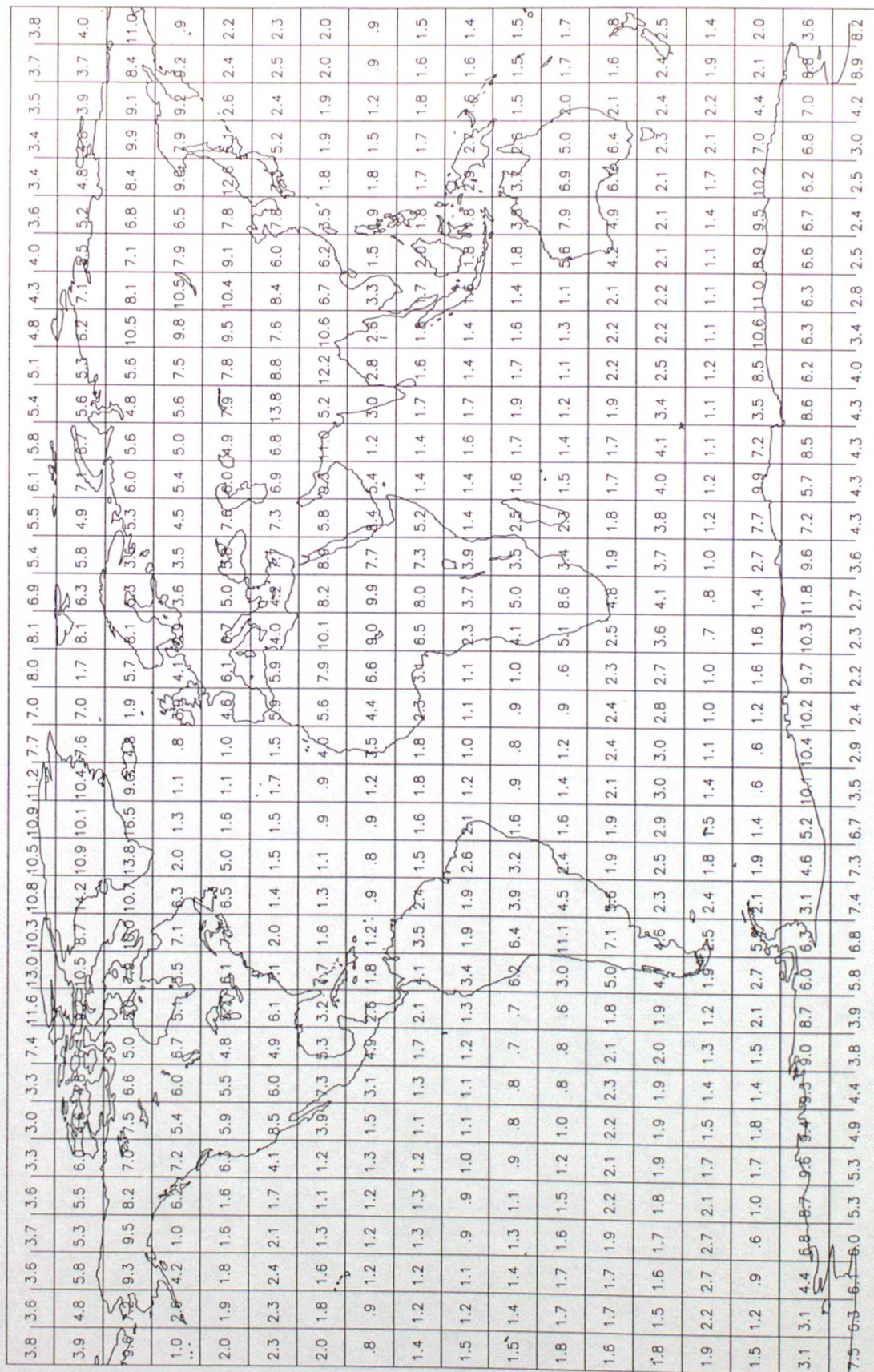
JANUARY 2001 : HIRS8 channel (Surface)

NOAA-15, USING ALL OBSERVATIONS



ATOVS : SD O-B BRIGHTNESS TEMPERATURE DIFFERENCES(DEG C)
 JANUARY 2001 : HIRS8 channel (Surface)
 NOAA-15, USING ALL OBSERVATIONS

FIGURE 27

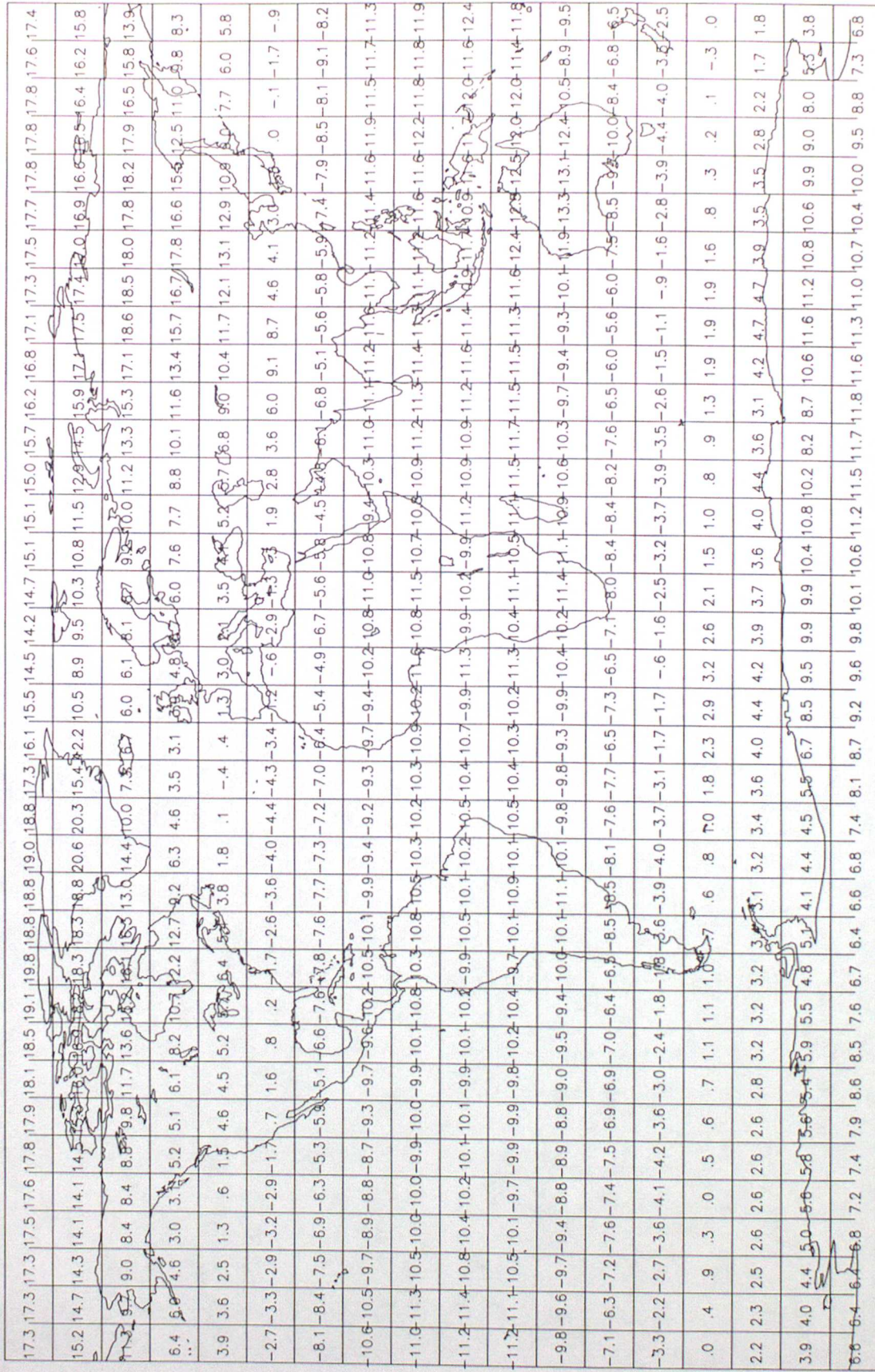


ATOVS : MEAN O-B BRIGHTNESS TEMPERATURE DIFFERENCES (DEG C)

FIGURE 28

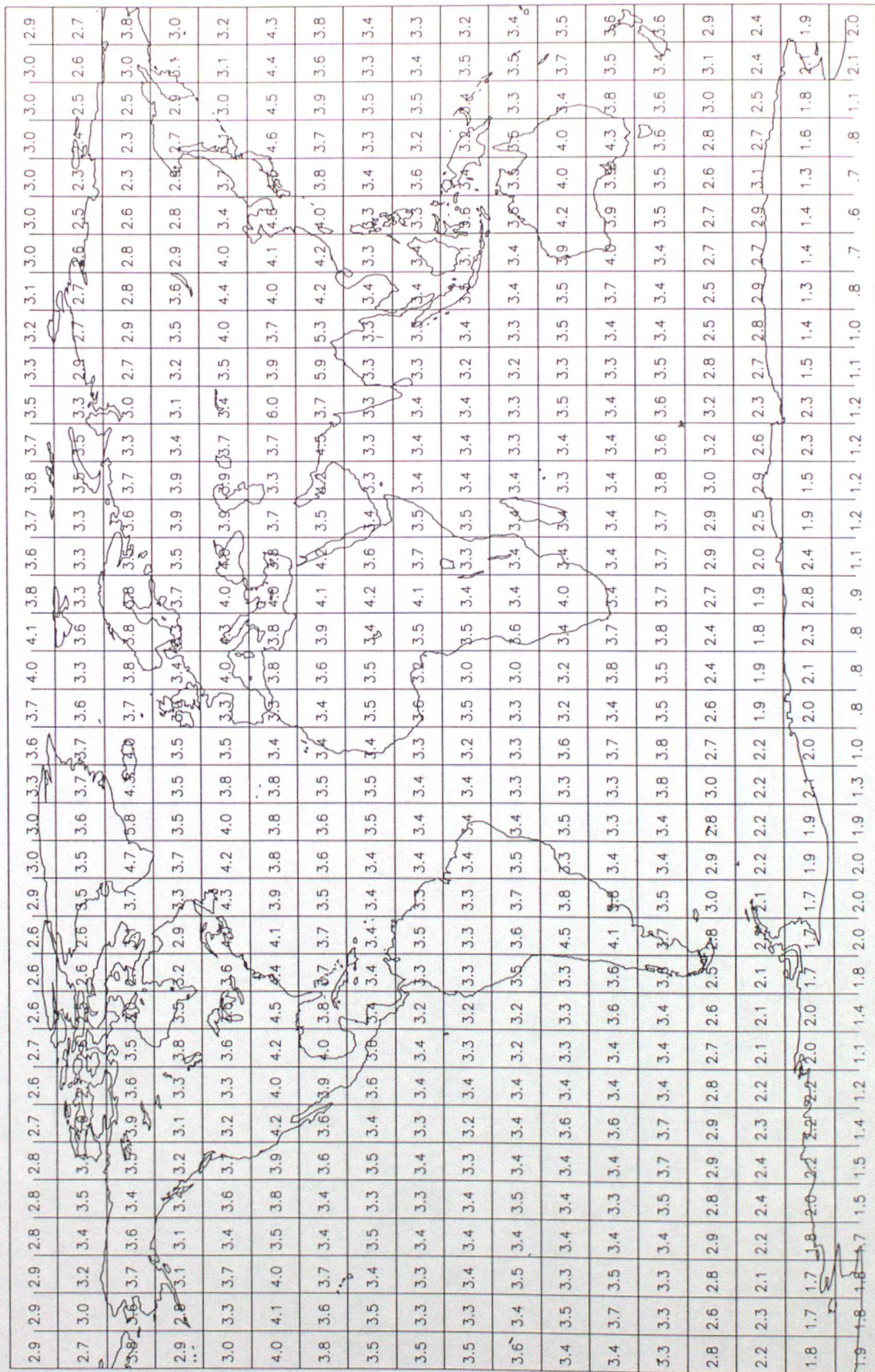
JANUARY 2001 : HIRS15 Channel (700 hPa)

NOAA-15, USING ALL OBSERVATIONS



ATOVS : SD O-B BRIGHTNESS TEMPERATURE DIFFERENCES(DEG C)
JANUARY 2001 : HIRS15 channel (700 hPa)
NOAA-15, USING ALL OBSERVATIONS

FIGURE 29

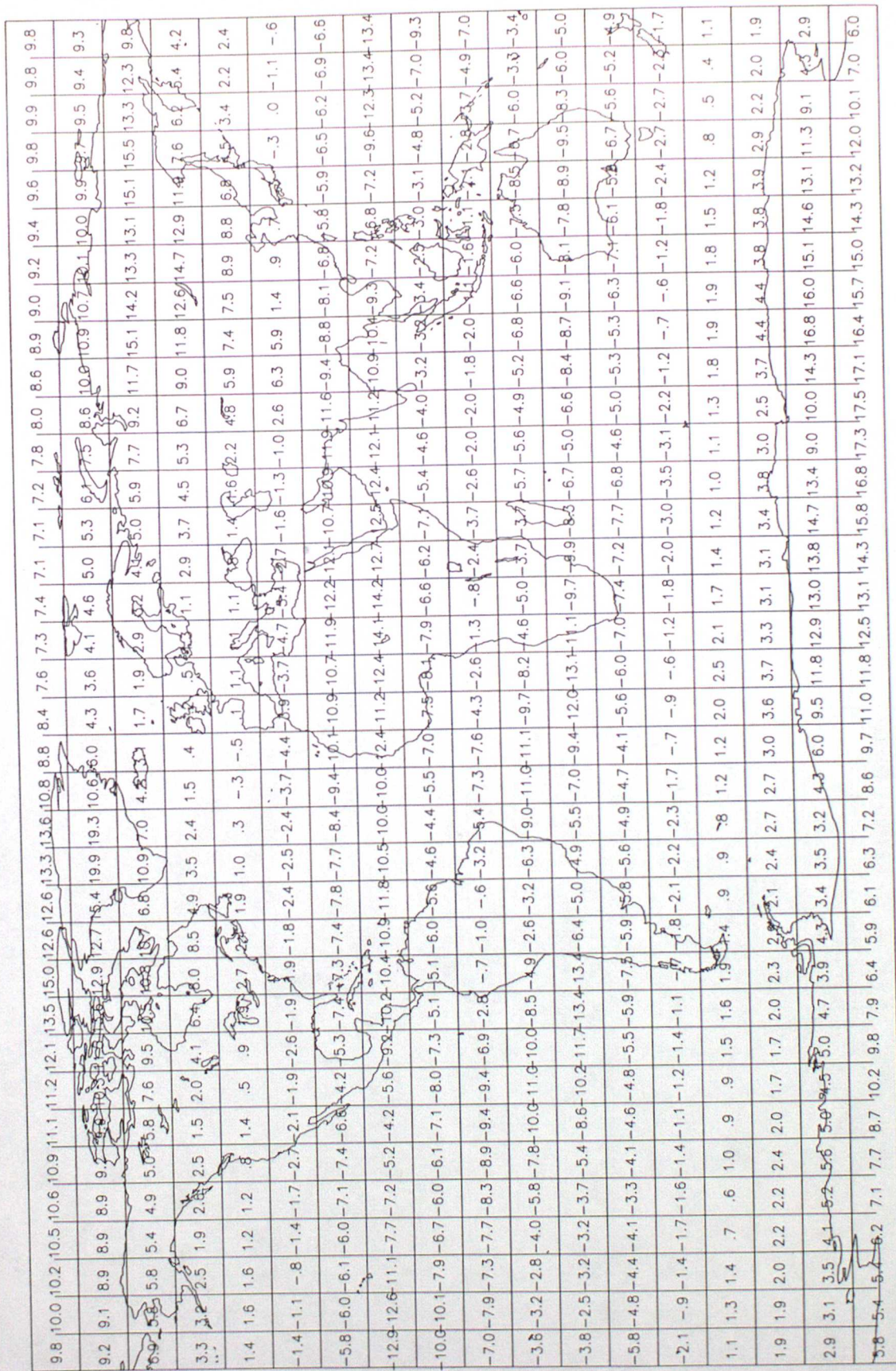


ATOVS : MEAN O-B BRIGHTNESS TEMPERATURE DIFFERENCES (DEG C)

JANUARY 2001 : HIRS11 Channel (500-700 hPa)

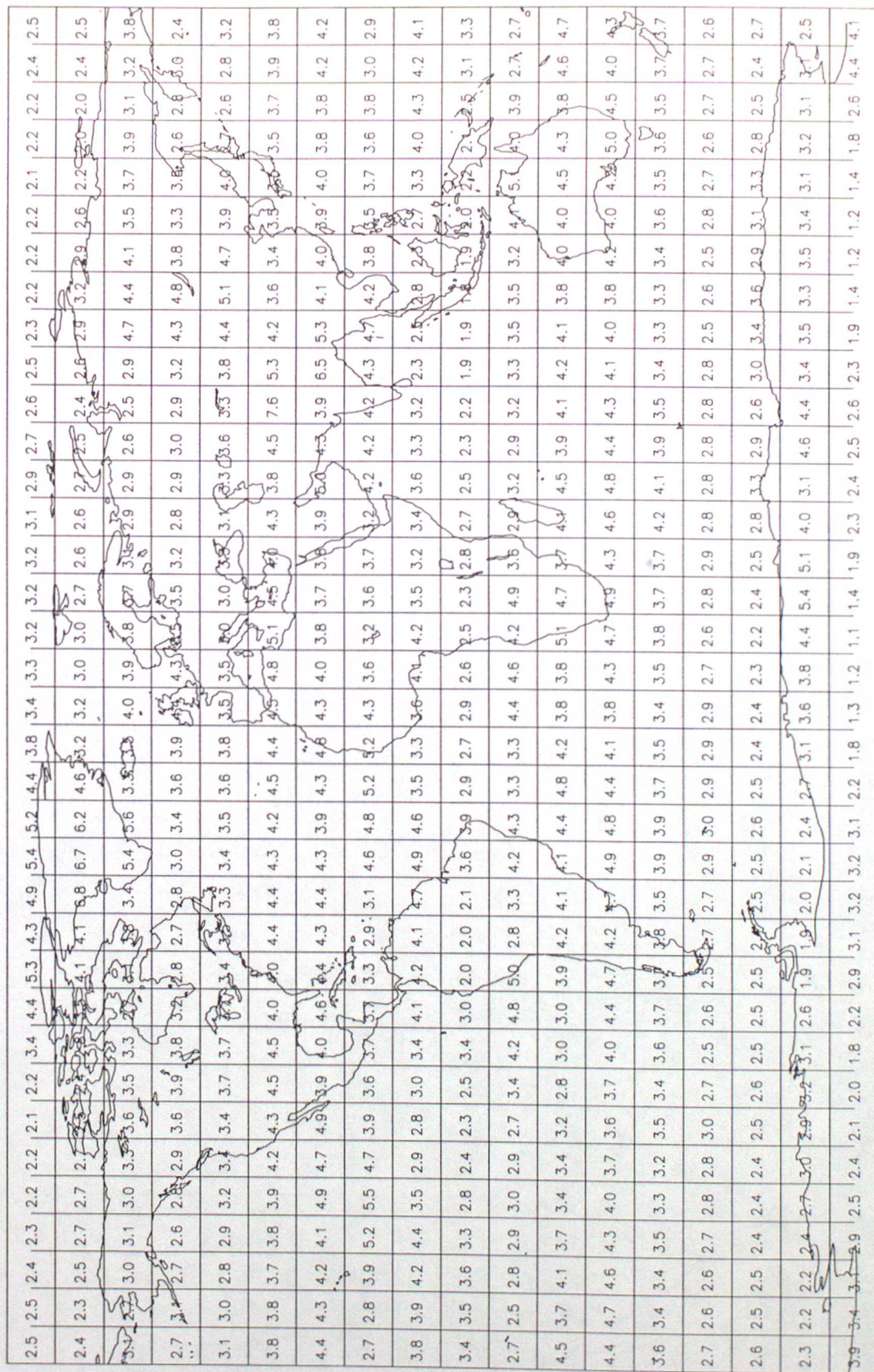
NOAA-15, USING ALL OBSERVATIONS

FIGURE 30



ATOVS : SD O-B BRIGHTNESS TEMPERATURE DIFFERENCES(DEG C)
 JANUARY 2001 : HIRS11 channel (500-700 hPa)
 NOAA-15, USING ALL OBSERVATIONS

FIGURE 31

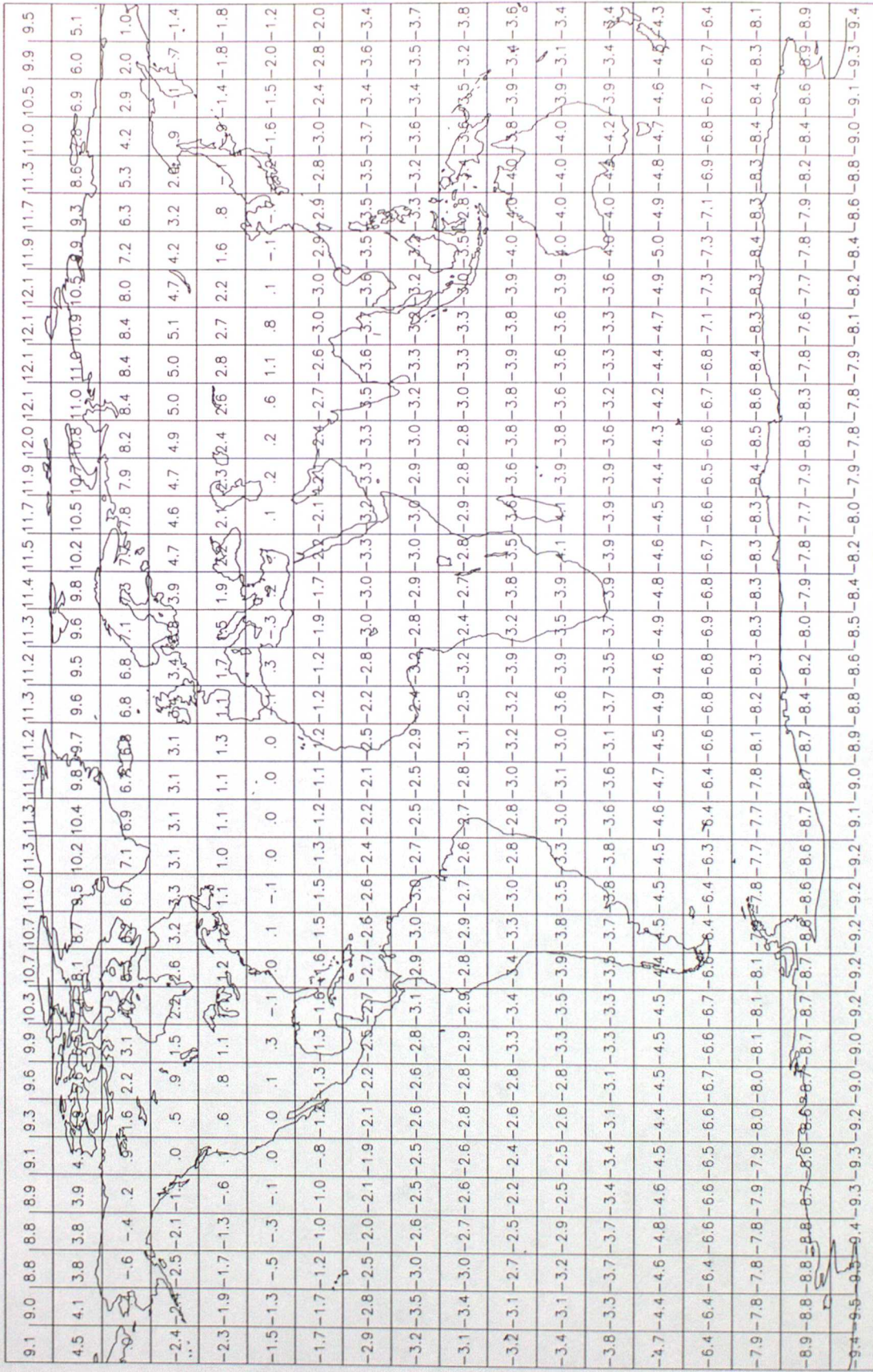


ATOVS : MEAN O-B BRIGHTNESS TEMPERATURE DIFFERENCES (DEG C)

JANUARY 2001 : HIRS4 channel (400 hPa)

NOAA-15, USING ALL OBSERVATIONS

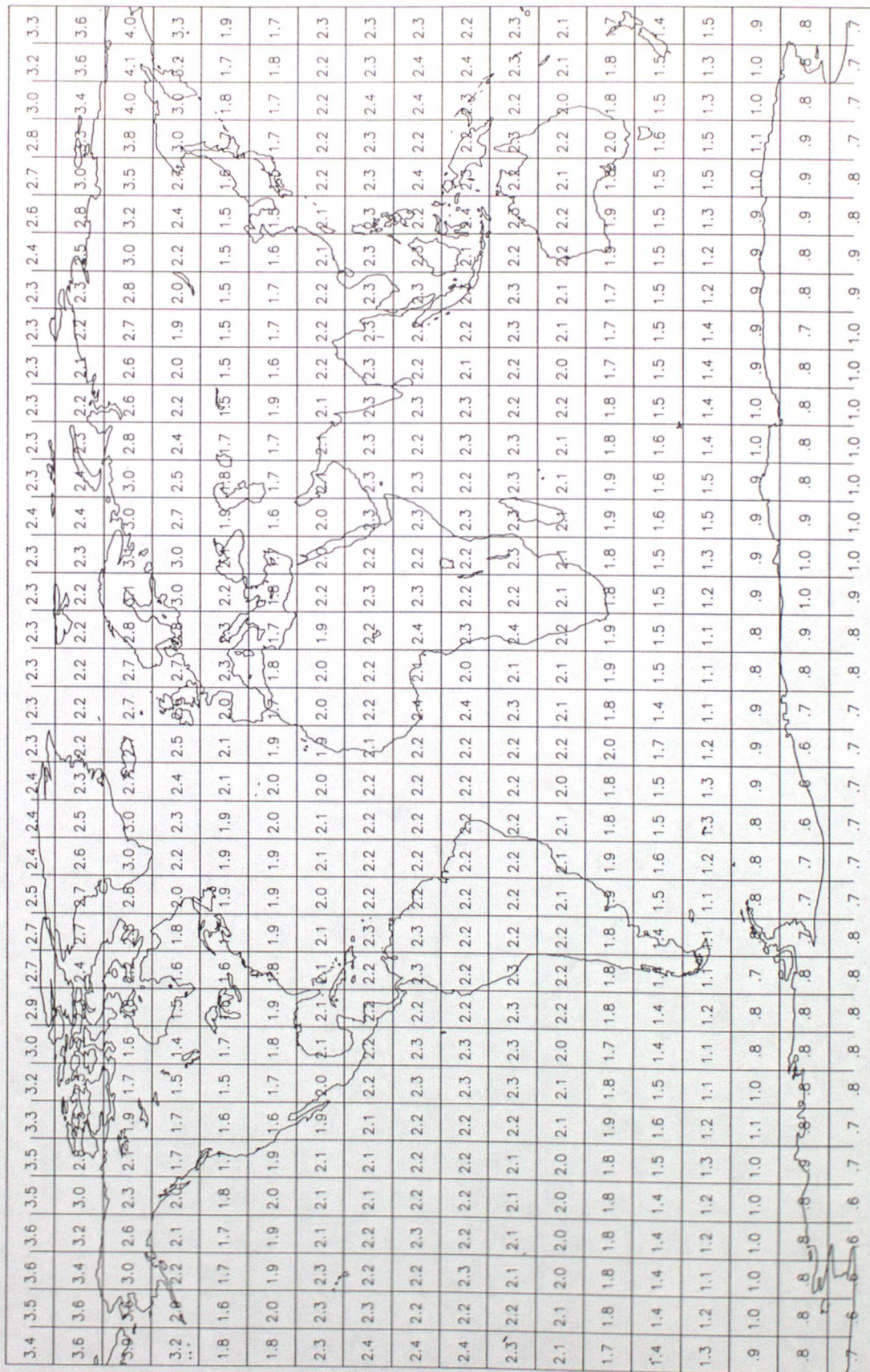
FIGURE 32



ATOV5 : SD O-B BRIGHTNESS TEMPERATURE DIFFERENCES(DEG C)

JANUARY 2001 : HIRS4 channel (400 hPa)

NOAA-15, USING ALL OBSERVATIONS

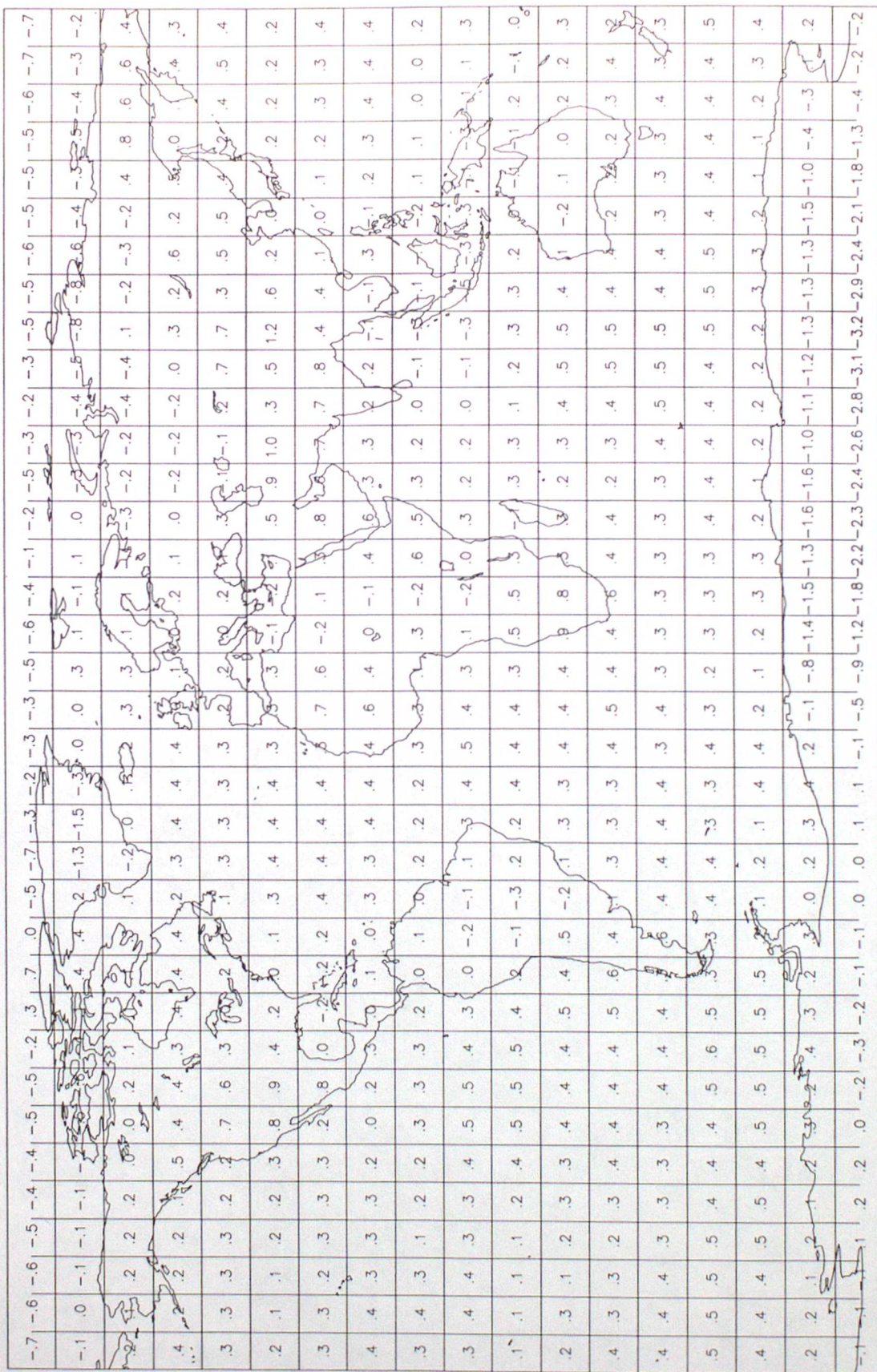


ATOVS : MEAN O-B BRIGHTNESS TEMPERATURE DIFFERENCES (DEG C)

JANUARY 2001 : AMSUA-5 Channel (700 hPa)

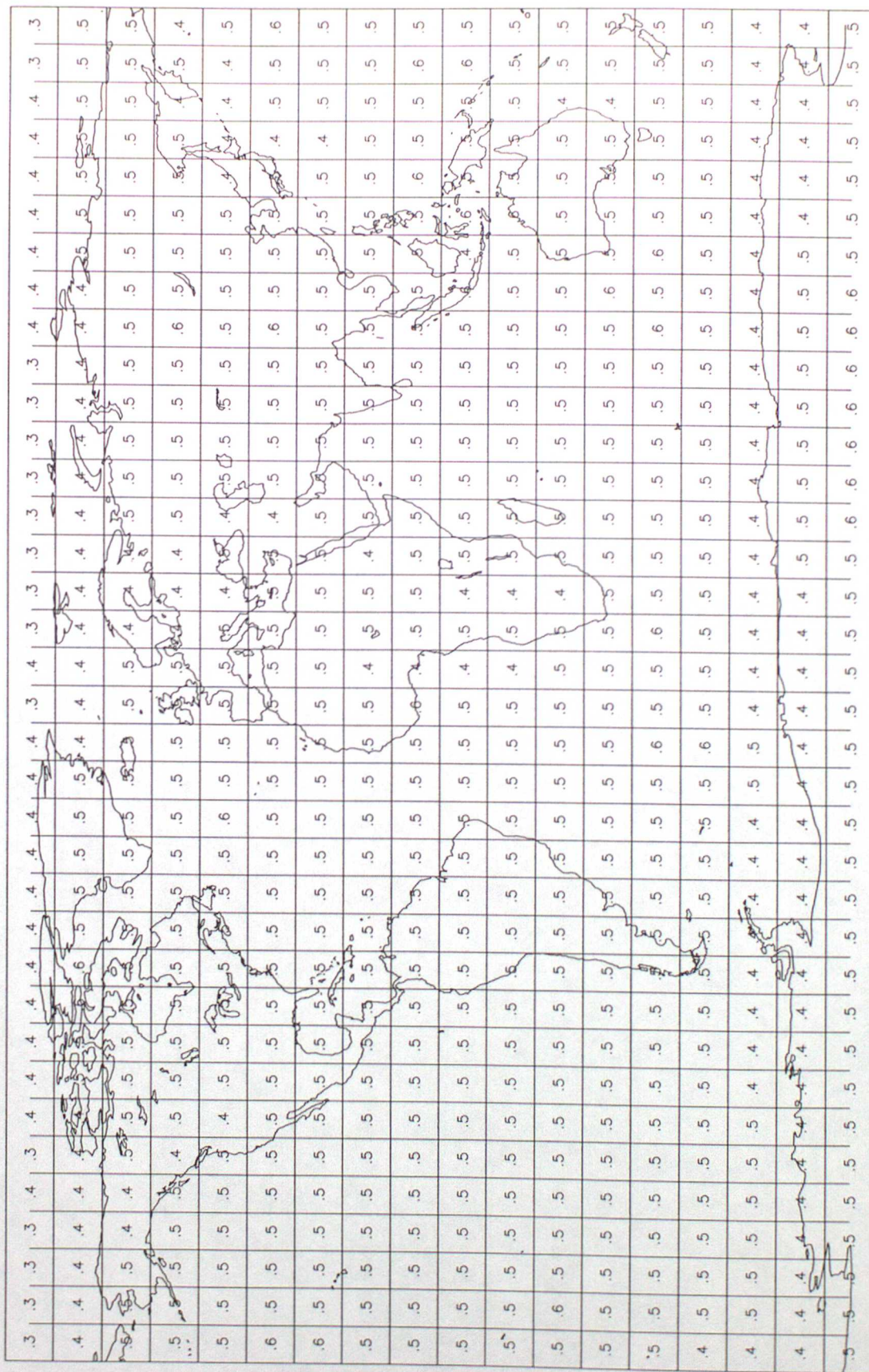
NOAA-15, USING ALL OBSERVATIONS

FIGURE 34



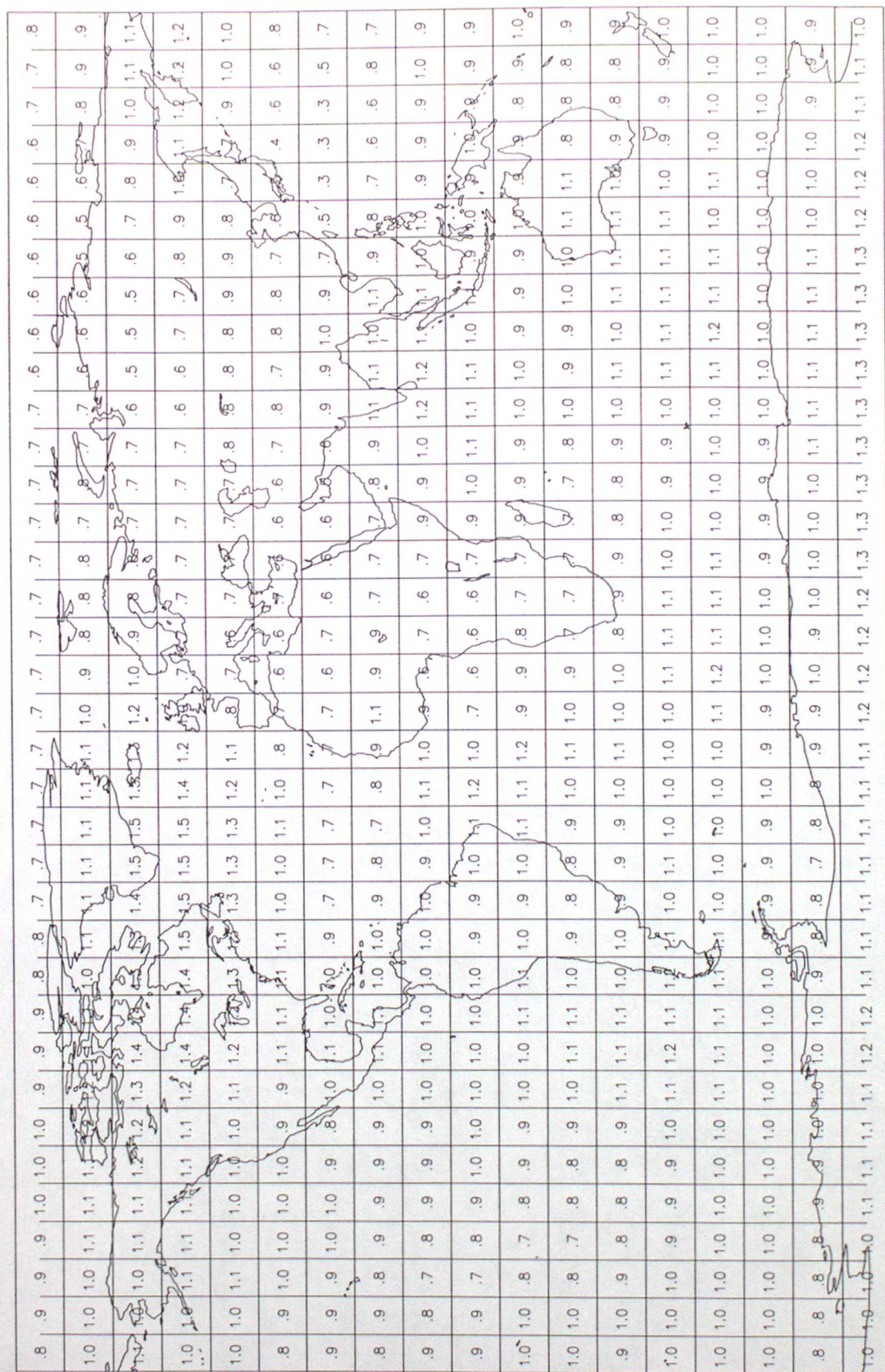
ATOVS : SD O-B BRIGHTNESS TEMPERATURE DIFFERENCES(DEG C)
JANUARY 2001 : AMSUA-7 channel (300 hPa)
NOAA-15, USING ALL OBSERVATIONS

FIGURE 37



ATOVs : MEAN O-B BRIGHTNESS TEMPERATURE DIFFERENCES (DEG C)

NOAA-15, USING ALL OBSERVATIONS



ATOVS : SD O-B BRIGHTNESS TEMPERATURE DIFFERENCES(DEG C)
 JANUARY 2001 : AMSUA-9 channel (100 hPa)
 NOAA-15, USING ALL OBSERVATIONS

FIGURE 39

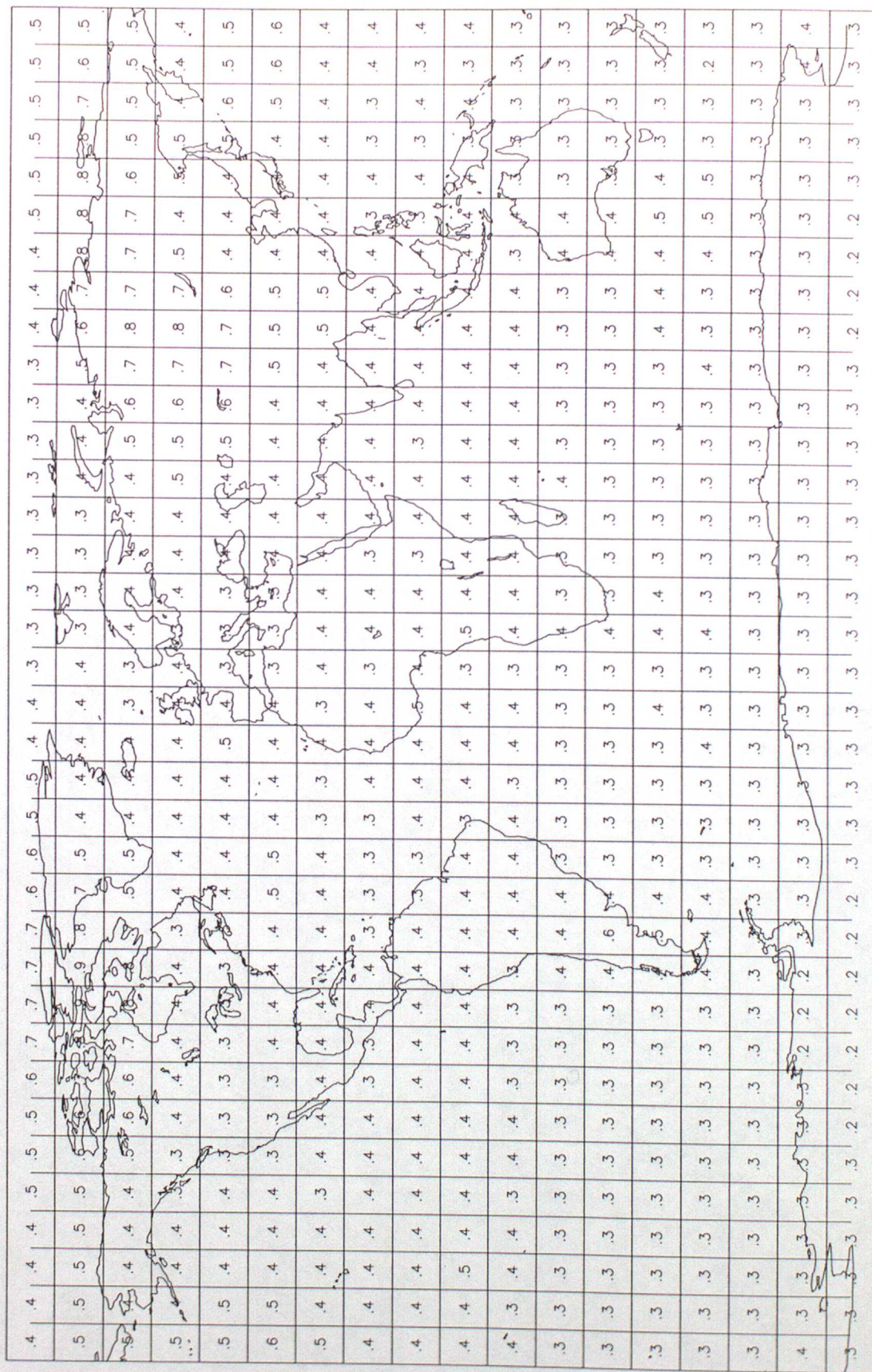


TABLE 8

MONTHLY MONITORING OF MARINE SURFACE OBSERVATIONS (COSNA)
 DATA TYPE:- DRIFTER
 MONITORING CENTRE: BRACKNELL
 MONTH: January 2001

Monitoring procedures		
Period		:One calendar month.
Data monitored		:Reports from each unique identifier for drifting buoy.
Area monitored		:10°N - 80°N, 85°W - 0°W
Standard of comparison		:Background field from UKMO global model.
Position		:Average latitude and longitude for period.
Observation times		:All hours combined.
Elements monitored		:Mean sea-level pressure (hPa) :Wind speed (m s^{-1}) :Wind direction (degrees)
Parameters monitored		
	:NOBS	:Number of observations received excluding duplicates.
	:NGE	:Number of observations with gross errors.
	:PGE	:Percentage of observations with gross errors.
	:SD	:SD of difference of observations from background values excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors. N.B. A positive bias indicates the observation is veered to the background
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors
GROSS ERROR LIMITS	:15 hPa (pressure) :25 m s^{-1} (Vector Wind)	

N.B. Observations of wind direction are only included in the wind direction statistics if the observed OR background wind speed $> 5 \text{ m s}^{-1}$

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
MEAN SEA LEVEL PRESSURE											
04808	40.5	-69.5	ALL	P	SUR	1	0	0	0.0	-0.2	0.2
26509	77.9	-38.0	ALL	P	SUR	267	0	0	3.6	-0.5	3.6
41501	29.3	-78.9	ALL	P	SUR	372	0	0	0.9	0.3	0.9
41502	24.6	-77.7	ALL	P	SUR	180	0	0	0.7	0.9	1.1
41503	30.7	-75.7	ALL	P	SUR	81	0	0	1.1	0.5	1.2
41504	22.9	-67.4	ALL	P	SUR	183	0	0	0.9	0.1	0.9
41505	26.3	-66.6	ALL	P	SUR	199	0	0	0.8	-1.0	1.3
41506	22.3	-75.0	ALL	P	SUR	173	0	0	0.8	0.2	0.8
41521	28.0	-68.6	ALL	P	SUR	294	0	0	0.7	0.3	0.8
41523	27.8	-59.2	ALL	P	SUR	354	1	0	0.8	0.0	0.8
41524	18.2	-72.1	ALL	P	SUR	23	23	100			
41571	31.1	-53.7	ALL	P	SUR	317	0	0	0.6	0.2	0.6
41572	22.1	-50.8	ALL	P	SUR	525	0	0	0.6	-0.2	0.6
41590	18.8	-63.7	ALL	P	SUR	509	0	0	0.5	0.3	0.6
41594	19.3	-76.5	ALL	P	SUR	526	0	0	0.6	0.4	0.8
41595	15.4	-77.8	ALL	P	SUR	517	0	0	0.6	0.3	0.6
41611	15.4	-72.4	ALL	P	SUR	528	0	0	0.5	0.3	0.6
41613	20.4	-42.8	ALL	P	SUR	517	0	0	0.6	0.2	0.6
41616	19.5	-53.4	ALL	P	SUR	533	0	0	0.5	0.3	0.5
41639	19.5	-61.9	ALL	P	SUR	237	0	0	0.6	0.9	1.1
41642	19.6	-66.1	ALL	P	SUR	261	0	0	0.6	0.0	0.6
41644	30.1	-46.9	ALL	P	SUR	351	0	0	0.7	0.1	0.7
44507	43.5	-70.1	ALL	P	SUR	1	0	0	0.0	-2.5	2.5
44546	58.2	-33.9	ALL	P	SUR	696	2	0	2.0	-0.4	2.1
44548	48.4	-44.8	ALL	P	SUR	588	2	0	1.8	-0.6	1.9
44608	24.9	-35.2	ALL	P	SUR	1852	0	0	0.6	0.4	0.7
44610	50.3	-24.8	ALL	P	SUR	1581	7	0	1.5	0.2	1.5
44611	43.9	-9.0	ALL	P	SUR	665	0	0	0.9	0.7	1.1
44612	37.4	-34.6	ALL	P	SUR	810	0	0	1.3	0.2	1.3
44613	32.3	-50.1	ALL	P	SUR	722	0	0	0.7	0.1	0.7
44620	29.8	-46.8	ALL	P	SUR	715	0	0	0.7	0.1	0.7
44622	55.8	-11.5	ALL	P	SUR	680	0	0	1.0	0.2	1.0
44623	36.3	-30.8	ALL	P	SUR	688	1	0	1.1	0.6	1.2
44628	33.9	-18.8	ALL	P	SUR	965	10	1	1.0	0.2	1.1
44723	46.5	-12.6	ALL	P	SUR	535	0	0	0.9	-0.6	1.1
44724	35.8	-21.0	ALL	P	SUR	857	0	0	0.7	0.3	0.8
44725	50.2	-43.6	ALL	P	SUR	666	0	0	1.2	-0.3	1.2
44727	28.3	-36.8	ALL	P	SUR	707	0	0	0.6	-0.7	0.9
44729	48.0	-17.9	ALL	P	SUR	655	0	0	0.9	-0.1	0.9
44741	59.2	-35.9	ALL	P	SUR	680	0	0	1.1	0.2	1.1
44743	49.0	-5.5	ALL	P	SUR	1428	6	0	0.8	0.3	0.9
44761	51.5	-25.3	ALL	P	SUR	694	0	0	1.1	-0.5	1.2
44762	45.5	-14.7	ALL	P	SUR	484	1	0	0.9	0.0	0.9
44765	34.8	-49.2	ALL	P	SUR	537	3	1	1.3	0.1	1.3
44770	50.2	-26.8	ALL	P	SUR	666	1	0	1.5	0.1	1.5
44771	52.9	-36.6	ALL	P	SUR	610	0	0	1.5	0.1	1.5
44772	44.9	-12.3	ALL	P	SUR	1231	9	1	1.2	-0.5	1.3
44774	46.4	-29.1	ALL	P	SUR	1004	4	0	0.9	-0.5	1.1
44775	41.8	-57.9	ALL	P	SUR	693	0	0	1.3	0.1	1.3
44776	44.2	-47.1	ALL	P	SUR	717	2	0	1.6	0.4	1.6
44778	39.4	-50.0	ALL	P	SUR	697	0	0	1.2	1.1	1.6
44825	40.3	-73.2	ALL	P	SUR	1	0	0	0.0	0.0	0.0
47555	66.7	-59.4	ALL	P	SUR	105	0	0	1.2	0.6	1.4
48581	73.0	-69.6	ALL	P	SUR	481	0	0	1.3	-0.3	1.3
62507	35.1	-18.0	ALL	P	SUR	1069	6	1	0.8	0.0	0.8
62508	34.1	-8.8	ALL	P	SUR	661	1	0	1.4	-0.3	1.4
62509	46.5	-2.6	ALL	P	SUR	289	0	0	0.9	-0.6	1.1
62513	47.3	-17.9	ALL	P	SUR	305	0	0	1.0	-1.0	1.4
62514	55.1	-14.8	ALL	P	SUR	632	2	0	1.7	0.5	1.8
62517	34.1	-16.2	ALL	P	SUR	666	0	0	0.7	-0.1	0.7

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
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MEAN SEA LEVEL PRESSURE

62519	43.0	-12.0	ALL	P	SUR	656	0	0	0.9	-0.6	1.1
62581	51.0	-13.3	ALL	P	SUR	1	0	0	0.0	-1.5	1.5
62596	60.0	-30.7	ALL	P	SUR	598	0	0	0.9	-0.5	1.0
62803	49.9	-2.9	ALL	P	SUR	1	0	0	0.0	-0.4	0.4
62881	51.0	-13.3	ALL	P	SUR	2	0	0	1.1	-0.5	1.2
63662	73.1	-11.4	ALL	P	SUR	128	0	0	2.3	-0.7	2.4
64517	54.8	-17.6	ALL	P	SUR	1169	0	0	1.1	-0.6	1.3
64548	58.6	-14.7	ALL	P	SUR	1257	10	1	1.2	-0.8	1.5
64698	58.7	-34.8	ALL	P	SUR	1080	0	0	1.1	-0.8	1.3
64699	55.8	-51.1	ALL	P	SUR	62	14	23	5.4	5.9	8.0
65593	60.9	-36.4	ALL	P	SUR	1677	6	0	1.2	-0.7	1.4
65600	59.0	-12.8	ALL	P	SUR	1752	2	0	1.1	-0.9	1.4
65601	59.1	-29.9	ALL	P	SUR	985	161	16	3.1	0.0	3.1
65602	57.5	-34.8	ALL	P	SUR	1211	11	1	1.3	-0.9	1.6
65662	56.5	-41.3	ALL	P	SUR	385	1	0	1.3	-0.5	1.4
65663	54.5	-42.8	ALL	P	SUR	415	0	0	1.8	-0.9	2.0

WIND SPEED

059115	29.0	-15.4	ALL	SPEED	SUR	1	0	0	0.0	21.1	21.1
068920	26.4	-78.1	ALL	SPEED	SUR	1	0	0	0.0	4.4	4.4
41501	29.3	-78.9	ALL	SPEED	SUR	338	4	1	3.5	3.0	4.6
41502	24.6	-77.7	ALL	SPEED	SUR	90	0	0	2.2	-4.3	4.9
41503	30.7	-75.7	ALL	SPEED	SUR	62	0	0	1.9	0.0	1.9
41504	22.9	-67.4	ALL	SPEED	SUR	81	0	0	8.5	5.8	10.3
41505	26.3	-66.6	ALL	SPEED	SUR	13	0	0	1.7	-4.2	4.5
41521	28.0	-68.6	ALL	SPEED	SUR	1	0	0	0.0	-7.6	7.6
41523	27.8	-59.2	ALL	SPEED	SUR	330	1	0	2.9	1.6	3.4
41590	18.8	-63.7	ALL	SPEED	SUR	64	0	0	1.8	-4.3	4.6
41594	19.3	-76.5	ALL	SPEED	SUR	278	21	8	5.1	6.3	8.1
41611	15.4	-72.4	ALL	SPEED	SUR	520	1	0	2.1	0.7	2.2
41616	19.5	-53.4	ALL	SPEED	SUR	61	0	0	1.7	-3.8	4.1
41630	19.0	-66.4	ALL	SPEED	SUR	247	0	0	2.6	-2.4	3.5
41639	19.5	-61.9	ALL	SPEED	SUR	226	1	0	3.1	1.1	3.3
41642	19.6	-66.1	ALL	SPEED	SUR	247	5	2	3.5	3.0	4.6
41644	30.1	-46.9	ALL	SPEED	SUR	9	0	0	0.5	-4.6	4.7
44743	49.0	-5.5	ALL	SPEED	SUR	1243	4	0	2.2	-1.0	2.4
44772	44.9	-12.3	ALL	SPEED	SUR	2	2	100			
44825	40.3	-73.2	ALL	SPEED	SUR	1	0	0	0.0	-0.7	0.7
469915	27.7	-79.9	ALL	SPEED	SUR	1	0	0	0.0	0.7	0.7
616040	26.2	-78.8	ALL	SPEED	SUR	1	0	0	0.0	5.8	5.8
62506	32.5	-27.8	ALL	SPEED	SUR	647	0	0	2.0	-2.1	2.9
62508	34.1	-8.8	ALL	SPEED	SUR	1	1	100			
62581	51.0	-13.3	ALL	SPEED	SUR	1	0	0	0.0	-1.5	1.5
62609	57.0	0.0	ALL	SPEED	SUR	1	0	0	0.0	-0.8	0.8
62881	51.0	-13.3	ALL	SPEED	SUR	2	0	0	1.0	-2.1	2.3
648967	27.0	-79.4	ALL	SPEED	SUR	1	0	0	0.0	4.4	4.4
757675	26.3	-78.2	ALL	SPEED	SUR	1	0	0	0.0	0.9	0.9
806195	27.0	-79.4	ALL	SPEED	SUR	1	0	0	0.0	3.1	3.1
909693	26.2	-78.5	ALL	SPEED	SUR	1	0	0	0.0	6.2	6.2

WIND DIRECTION

059115	29.0	-15.4	ALL	DIRN.	SUR	1	0	0	0.0	3.2	3.2
068920	26.4	-78.1	ALL	DIRN.	SUR	1	0	0	0.0	14.8	14.8
41501	29.3	-78.9	ALL	DIRN.	SUR	202	4	2	20.6	1.6	20.6
41503	30.7	-75.7	ALL	DIRN.	SUR	47	0	0	21.6	5.7	22.4
41504	22.9	-67.4	ALL	DIRN.	SUR	46	0	0	20.2	17.9	27.0
41523	27.8	-59.2	ALL	DIRN.	SUR	190	1	1	54.9	4.7	55.1
41594	19.3	-76.5	ALL	DIRN.	SUR	127	21	17	66.5	-40.7	77.9
41611	15.4	-72.4	ALL	DIRN.	SUR	466	1	0	12.0	5.7	13.3
41630	19.0	-66.4	ALL	DIRN.	SUR	16	0	0	37.2	-44.2	57.8
41639	19.5	-61.9	ALL	DIRN.	SUR	116	1	1	25.3	-10.2	27.3

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
WIND DIRECTION											
41642	19.6	-66.1	ALL	DIRN.	SUR	166	5	3	16.4	-4.1	16.9
44743	49.0	-5.5	ALL	DIRN.	SUR	944	4	0	17.9	-2.3	18.0
44772	44.9	-12.3	ALL	DIRN.	SUR	2	2	100			
469915	27.7	-79.9	ALL	DIRN.	SUR	1	0	0	0.0	12.4	12.4
616040	26.2	-78.8	ALL	DIRN.	SUR	1	0	0	0.0	4.2	4.2
62506	32.5	-27.8	ALL	DIRN.	SUR	89	0	0	23.4	18.1	29.6
62508	34.1	-8.8	ALL	DIRN.	SUR	1	1	100			
62609	57.0	0.0	ALL	DIRN.	SUR	1	0	0	0.0	-14.6	14.6
62881	51.0	-13.3	ALL	DIRN.	SUR	1	0	0	0.0	0.4	0.4
648967	27.0	-79.4	ALL	DIRN.	SUR	1	0	0	0.0	-44.3	44.3
806195	27.0	-79.4	ALL	DIRN.	SUR	1	0	0	0.0	12.0	12.0
909693	26.2	-78.5	ALL	DIRN.	SUR	1	0	0	0.0	16.4	16.4

TABLE 9

MONTHLY MONITORING OF AIRCRAFT OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH: January 2001

Monitoring procedures:		
Period		:One calendar month.
Data monitored		:Statistics for each airline carrier.
Area monitored		:40°N - 70°N, 60°W - 0°W.
Standard of comparison		:Background field from UKMO global model.
Observation times		:All hours combined.
Level(s) monitored		:300.0 - 150.0 hPa
Elements monitored		:TEMP in °C ; WIND in m s ⁻¹
Parameters monitored	:N REP.	:Number of observations received excluding duplicates.
	:PG	:Percentage of observations with gross errors.
	:PR	:Percentage of observations rejected by quality control including rejections from the duplicate check.
	:PC	:Percentage of observations with calm winds.
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors in Temperature & vector wind.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors in Temperature & vector wind.
GROSS ERROR LIMITS	:10.0 °C ; 60 m s ⁻¹ Vector Wind	
SELECTION CRITERIA	:N REP ≥ 20	

NB : All American ACARS data are grouped together and statistics are shown at the bottom of the table as "US ACARS". All ADS reports are similarly grouped together.

IDENT.	N.REP.	TEMPERATURE				N.REP.	WIND				BIAS
		PG	PR	RMS	BIAS		PG	PR	PC	RMS	
AAL	2746	1	6	1.6	0.2	2726	0	5	0	7.0	0.7
ACA	1407	1	3	1.6	0.0	1428	0	3	0	6.7	0.7
AEA	323	0	3	1.7	0.2	325	1	6	0	9.9	0.7
AEL	341	0	7	1.8	-0.7	349	0	9	0	8.8	1.0
AEY	82	0	4	2.0	1.2	84	1	8	0	11.3	0.8
AFL	182	1	5	2.3	0.4	188	0	2	0	7.6	1.0
AFR	1136	1	5	1.7	0.2	1152	0	6	0	7.0	1.3
AIH	155	0	1	1.6	0.0	158	0	2	0	6.4	1.1
AJM	111	0	1	1.6	-0.3	112	1	4	0	8.6	2.3
ALM	45	0	4	1.3	0.4	45	0	4	0	6.6	2.1
AMM	96	0	1	1.3	0.4	98	0	58	0	10.2	0.5
AMX	147	1	4	2.2	0.7	147	1	3	0	8.7	0.8
ANZ	158	0	34	1.5	-0.9	156	1	35	0	6.1	0.0
AOM	413	0	2	1.7	0.5	421	0	3	0	7.4	1.1
AVA	208	1	2	2.0	0.3	211	0	4	0	10.2	0.6
AZA	466	0	100	2.5	0.7	477	0	5	0	7.8	0.8
BAL	140	0	6	1.5	-0.2	138	0	7	0	6.5	1.3
BAW	1141	1	6	1.8	0.1	1142	1	7	0	7.2	1.0
BLX	34	0	3	1.6	-1.2	35	0	6	0	9.6	0.1
BWA	102	2	60	4.1	3.6	104	2	8	0	9.1	1.7
CDN	139	0	8	1.4	-0.1	145	0	11	0	6.5	1.3
CFG	385	0	1	1.6	-0.7	386	0	2	0	7.3	1.6
CLX	247	0	2	1.7	-0.3	246	0	2	0	6.3	0.3
CMM	94	0	2	2.1	0.1	94	0	0	0	6.0	1.2
COA	490	1	6	1.7	0.0	507	0	7	0	9.1	1.4
CRL	319	0	2	2.1	1.2	326	1	3	0	6.6	1.4
CUB	118	0	5	1.6	0.8	119	0	3	0	7.9	1.5
DAL	1059	1	18	1.8	-0.4	1070	0	19	0	8.1	1.0
DBY	173	1	1	1.5	-0.4	179	0	1	0	6.8	1.2
DLH	1184	0	5	1.6	0.1	1180	0	6	0	6.5	0.7
EEZ	47	0	100	2.2	1.2	46	2	11	0	9.4	1.5
ELY	94	0	0	1.6	-0.2	94	1	2	0	6.6	1.4
EWV	70	0	4	1.1	0.3	73	0	5	0	9.7	2.1
FDX	849	0	31	1.5	0.4	866	0	31	0	7.9	0.9
FIN	338	0	1	1.3	0.2	331	1	3	0	7.9	0.6
GAF	33	3	12	2.6	-0.2	33	0	6	0	7.3	0.3
GCO	172	0	5	1.4	-0.1	177	0	100	0	15.9	4.7
GRL	29	0	0	1.2	0.0	29	0	0	0	4.2	2.2
GTI	90	1	4	1.8	-0.6	90	0	2	0	7.0	1.3
HLF	64	0	0	1.6	-0.8	66	3	5	0	8.2	1.3
IBE	1078	1	7	1.9	0.3	1073	1	8	0	8.7	1.0
ICE	1061	0	2	1.6	0.3	1053	0	2	0	5.9	0.7
IWD	20	0	0	1.4	-0.1	20	0	5	0	14.3	2.0
JKK	188	1	4	1.4	-0.1	190	0	5	0	8.6	2.2
JMC	89	0	9	1.8	1.2	90	0	11	0	9.7	1.3
KLM	1594	0	9	1.6	0.3	1613	0	9	0	7.3	0.9
LDA	84	0	2	1.7	0.1	86	0	6	0	7.9	2.0
LDI	500	0	50	1.7	-0.7	514	0	4	0	8.4	1.1
LIB	89	2	6	2.0	1.2	92	2	5	0	7.9	1.6
LOT	292	0	5	1.8	-1.1	287	1	6	0	7.2	0.3
LTU	281	0	2	1.7	-0.6	280	0	3	0	7.1	1.2
MAS	39	0	0	1.6	0.7	40	0	43	0	9.9	0.2
MON	53	0	4	1.7	0.0	53	0	6	0	9.9	0.1
MPD	107	2	7	2.0	-0.2	108	0	6	0	10.1	0.3
MPH	385	0	2	1.9	-0.7	392	0	2	0	8.6	1.1
NVR	37	3	3	1.0	0.0	39	0	0	0	4.8	0.3
NWA	3348	1	2	1.6	0.5	3335	0	2	0	6.7	0.6
OAL	38	0	0	1.3	-0.2	39	0	0	0	5.9	2.9
PAC	113	0	7	1.8	-0.2	117	0	9	0	7.9	0.9

IDENT.	N.REP.	TEMPERATURE			BIAS	N.REP.	PG	WIND		RMS	BIAS
		PG	PR	RMS				PR	PC		
						30	0	13	0	11.1	1.4
RAM	30	0	10	2.6	-0.3	37	0	5	0	11.9	1.4
RCH	37	5	8	2.6	0.3	20	0	0	0	5.9	2.0
RRR	21	0	0	1.6	-0.7	54	2	48	0	11.8	-0.9
RZO	55	0	9	1.5	-0.7	83	0	2	0	6.8	0.5
SIA	81	0	2	1.7	-0.9						
						123	2	7	0	7.1	1.6
SLR	125	0	6	1.6	0.0	88	0	6	0	8.8	0.4
SVA	83	0	7	2.1	0.7	29	0	14	0	12.6	1.6
SWR	31	0	3	1.6	0.3	222	0	6	0	7.6	1.3
TAP	222	0	4	1.8	-0.2	22	0	5	0	9.1	2.0
TSC	21	0	0	1.3	-0.2						
						570	1	5	0	7.9	1.0
TWA	603	1	4	1.8	0.1	1732	0	100	0	6.6	0.9
UAL	1697	0	100	1.7	-0.1	850	0	29	0	8.3	1.1
UPS	828	0	27	1.7	0.1	181	1	4	0	9.2	1.2
USA	222	0	1	1.7	0.2	518	0	3	0	7.6	0.7
VIR	523	0	2	1.6	-0.1						
						82	0	2	0	7.2	1.0
VKG	77	0	0	1.6	0.2	26	0	0	0	5.5	0.5
VPB	26	0	0	1.7	0.4	32	0	0	0	5.6	0.3
WOA	32	0	0	1.2	0.2						
						19461	0	16	0	4.9	0.6
EU	19461	0	16	1.2	-0.1	3364	0	24	0	5.2	0.9
KL	3367	0	24	1.4	0.9	265	0	6	0	4.5	1.3
LH	266	0	6	1.7	1.2						
						361	0	4	0	8.1	0.7
N	340	1	3	2.2	0.5	26144	0	23	0	5.3	0.8
US ACARS	26144	3	29	1.4	0.3						

TABLE 10

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH: January 2001

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from selected radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from UKMO global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:100 hPa.
Element monitored		:GEOPOTENTIAL HEIGHT in metres
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:SD	:SD of difference of observations from background values at level shown excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values at level shown excluding those with gross errors.
GROSS ERROR LIMITS		:Defined in Appendix I.1

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
DASAP3	12	Z	100	1	0	0.0	5.0	5.0
ELML7	00	Z	100	2	0	1.0	29.0	29.0
ELML7	12	Z	100	3	0	6.2	47.7	47.3
FNOR	00	Z	100	9	0	14.6	29.2	25.3
FNOR	12	Z	100	10	0	16.0	21.3	14.1
FNOU	00	Z	100	8	0	18.8	32.0	25.9
FNOU	12	Z	100	10	0	18.0	25.9	18.6
FNPH	00	Z	100	9	0	16.6	29.3	24.1
FNPH	12	Z	100	11	0	21.1	29.5	20.5
FNRS	00	Z	100	12	0	10.5	15.5	11.3
FNRS	12	Z	100	12	0	18.1	19.1	6.1
LDWR	00	Z	100	29	0	11.1	15.4	-10.7
LDWR	12	Z	100	29	0	15.8	18.5	-9.7
OVYA2	00	Z	100	13	0	32.0	32.7	7.0
OVYA2	12	Z	100	13	0	19.6	27.2	-18.8
OXTS2	00	Z	100	12	0	11.4	15.0	-9.8
OXTS2	12	Z	100	13	0	18.7	27.0	-19.5
SWJS	00	Z	100	2	0	3.0	18.2	18.0
SWJS	12	Z	100	3	0	6.5	9.5	7.0
ZCBP6	00	Z	100	4	0	11.0	11.2	-2.0
ZCBP6	12	Z	100	4	0	11.5	13.2	6.5
03953	00	Z	100	30	0	14.8	21.4	15.4
03953	12	Z	100	31	0	11.9	15.4	9.8
04018	00	Z	100	28	0	20.2	21.2	-6.3
04018	12	Z	100	31	0	21.7	22.8	-6.9
04220	00	Z	100	30	0	9.2	9.7	-3.3
04220	12	Z	100	30	0	12.1	14.9	-8.7
04270	00	Z	100	29	0	9.0	12.2	-8.3
04270	12	Z	100	30	0	12.5	22.8	-19.1
04339	00	Z	100	30	0	14.4	16.1	-7.1
04339	12	Z	100	28	0	15.7	17.6	-8.1
04360	00	Z	100	28	0	11.0	12.3	-5.5
04360	12	Z	100	30	0	14.5	19.5	-13.0
08001	00	Z	100	21	0	19.8	21.6	-8.5
08001	12	Z	100	21	1	35.2	37.8	-13.8
08508	00	Z	100	26	0	11.3	15.6	10.8
08508	12	Z	100	30	0	11.4	15.9	11.1
08522	12	Z	100	30	0	14.0	14.0	1.1
08594	12	Z	100	17	0	14.0	28.6	24.9
60020	00	Z	100	28	0	12.4	26.5	23.4
60020	12	Z	100	29	0	14.9	22.4	16.8
71600	00	Z	100	29	0	15.3	18.1	-9.6
71600	12	Z	100	31	0	16.1	22.3	-15.5
72201	00	Z	100	30	0	21.0	23.5	10.7
72201	12	Z	100	31	0	26.1	26.6	5.1
72402	00	Z	100	29	0	14.7	21.9	16.3
72402	12	Z	100	31	0	15.9	17.8	8.0
74494	00	Z	100	23	0	9.8	10.4	-3.4
74494	12	Z	100	27	0	12.0	25.3	-22.3
78016	00	Z	100	1	0	0.0	6.0	6.0
78016	12	Z	100	25	0	28.0	43.9	33.8

TABLE 11

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH: January 2001

Monitoring procedures:

Period		:One calendar month.
Data monitored		:Reports from selected radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from UKMO global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:500 hPa.
Element monitored		:GEOPOTENTIAL HEIGHT in metres
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:SD	:SD of difference of observations from background values at level shown excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values at level shown excluding those with gross errors.
GROSS ERROR LIMITS		:Defined in Appendix I.1

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
DASAP3	12	Z	500	2	0	2.5	5.1	4.5
ELML7	00	Z	500	8	0	13.9	14.8	4.9
ELML7	12	Z	500	10	0	7.1	15.3	13.5
FNOR	00	Z	500	10	0	13.3	15.0	6.9
FNOR	12	Z	500	10	0	7.0	14.6	12.8
FNOU	00	Z	500	11	0	7.2	11.5	9.0
FNOU	12	Z	500	11	0	8.3	15.1	12.5
FNPH	00	Z	500	10	0	9.0	9.6	3.4
FNPH	12	Z	500	12	0	8.8	12.5	8.8
FNRS	00	Z	500	12	0	9.3	9.9	-3.3
FNRS	12	Z	500	13	0	10.4	10.5	0.5
LDWR	00	Z	500	30	0	11.9	12.8	-4.5
LDWR	12	Z	500	29	0	8.4	9.5	-4.4
OVYA2	00	Z	500	14	0	26.0	29.2	13.3
OVYA2	12	Z	500	14	0	25.6	28.1	-11.5
OXTS2	00	Z	500	12	0	9.7	11.9	-7.0
OXTS2	12	Z	500	14	0	13.8	20.1	-14.6
SWJS	00	Z	500	2	0	5.0	11.2	10.0
SWJS	12	Z	500	3	0	2.2	9.3	9.0
ZCBP6	00	Z	500	4	0	10.1	12.0	6.5
ZCBP6	12	Z	500	4	0	11.5	19.1	15.3
03953	00	Z	500	30	0	8.9	10.2	5.0
03953	12	Z	500	31	0	10.9	13.5	8.1
04018	00	Z	500	29	0	10.9	11.5	3.7
04018	12	Z	500	31	0	12.2	12.8	4.0
04220	00	Z	500	30	0	8.9	8.9	-0.5
04220	12	Z	500	30	0	11.3	14.8	-9.6
04270	00	Z	500	29	0	8.2	8.4	1.7
04270	12	Z	500	30	0	9.8	10.1	-2.0
04339	00	Z	500	30	0	10.8	11.3	3.3
04339	12	Z	500	29	0	12.7	12.7	0.5
04360	00	Z	500	29	0	9.4	9.4	0.2
04360	12	Z	500	30	0	10.3	11.4	-4.7
08001	00	Z	500	24	0	12.9	15.2	-8.0
08001	12	Z	500	25	1	13.6	15.1	-6.5
08508	00	Z	500	26	0	12.2	12.7	3.4
08508	12	Z	500	30	0	10.8	14.7	10.0
08522	12	Z	500	30	0	8.3	13.5	10.7
08594	12	Z	500	24	0	8.1	8.2	-1.3
60020	00	Z	500	28	0	9.4	10.8	5.3
60020	12	Z	500	30	0	9.8	12.7	8.0
71600	00	Z	500	29	0	12.1	16.5	-11.3
71600	12	Z	500	31	0	12.7	15.9	-9.5
72201	00	Z	500	30	0	7.6	8.7	-4.4
72201	12	Z	500	31	0	10.3	12.6	-7.3
72402	00	Z	500	29	0	7.7	8.5	3.8
72402	12	Z	500	31	0	7.2	7.3	-0.8
74494	00	Z	500	24	0	7.0	7.4	-2.5
74494	12	Z	500	27	0	7.5	10.5	-7.3
78016	00	Z	500	1	0	0.0	7.0	7.0
78016	12	Z	500	28	0	16.8	22.2	14.6

TABLE 12

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH: January 2001

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from selected radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from UKMO global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:100 hPa.
Element monitored		:VECTOR WIND in m s^{-1}
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:UBIAS,VBIAS	:Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.
GROSS ERROR LIMITS	:Defined in Appendix I.2	

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	% REJ	RMS	UBIAS	VBIAS
DASAP3	12	V	100	1	0	0	0.9	-0.3	-0.9
ELML7	00	V	100	2	0	0	8.5	-4.6	2.5
ELML7	12	V	100	1	0	0	9.0	0.4	-9.0
FNOR	00	V	100	10	0	0	5.8	0.7	0.8
FNOR	12	V	100	10	0	0	5.4	-1.3	-3.6
FNOU	00	V	100	9	0	0	6.5	-0.5	1.3
FNOU	12	V	100	10	0	0	3.3	-0.2	-1.2
FNPB	00	V	100	8	0	0	4.2	0.0	0.4
FNPB	12	V	100	9	0	0	5.1	1.2	-1.0
FNRS	00	V	100	10	0	0	4.9	0.1	1.5
FNRS	12	V	100	12	0	0	4.7	-0.6	0.4
LDWR	00	V	100	29	0	0	4.2	1.1	-1.3
LDWR	12	V	100	29	0	0	3.1	1.1	-0.9
OVYA2	00	V	100	9	0	0	3.2	0.4	0.8
OVYA2	12	V	100	9	0	0	3.4	-0.8	0.7
OXTS2	00	V	100	9	0	11	7.8	-2.3	2.9
OXTS2	12	V	100	11	0	9	6.6	-1.4	1.3
SWJS	00	V	100	2	0	0	2.4	-0.7	-2.0
SWJS	12	V	100	3	0	0	3.9	2.3	1.8
ZCBP6	00	V	100	4	0	0	4.7	0.4	0.7
ZCBP6	12	V	100	3	0	0	2.4	0.0	0.2
03953	00	V	100	30	0	0	3.5	1.2	0.6
03953	12	V	100	31	0	0	3.9	-0.1	0.1
04018	00	V	100	26	0	0	3.8	1.4	-1.2
04018	12	V	100	30	0	0	3.8	0.9	-0.2
04220	00	V	100	28	0	3	4.3	0.0	0.2
04220	12	V	100	28	0	0	3.4	-0.5	0.1
04270	00	V	100	28	0	0	3.1	-0.8	1.2
04270	12	V	100	28	0	0	3.6	0.1	0.6
04339	00	V	100	29	0	3	5.9	-1.0	-0.1
04339	12	V	100	28	0	0	5.6	0.0	-0.9
04360	00	V	100	28	0	0	3.2	0.4	0.9
04360	12	V	100	30	0	0	3.2	-0.4	0.7
08001	00	V	100	20	0	0	5.1	2.1	1.3
08001	12	V	100	19	0	0	4.6	-0.1	-0.1
08508	00	V	100	19	0	0	5.3	0.8	-2.0
08508	12	V	100	19	0	0	5.8	-0.5	0.8
08522	12	V	100	30	0	0	5.3	-0.9	0.6
08594	12	V	100	19	0	100	5.8	-1.2	-1.1
60020	00	V	100	28	0	0	6.6	2.4	-0.3
60020	12	V	100	28	0	3	6.9	-0.8	0.3
71600	00	V	100	29	0	0	4.3	1.0	0.2
71600	12	V	100	31	0	0	3.8	1.6	-0.2
72201	00	V	100	29	0	0	4.8	0.4	2.1
72201	12	V	100	31	0	0	5.0	-1.2	0.9
72402	00	V	100	29	0	0	3.7	1.4	-0.7
72402	12	V	100	31	0	0	4.9	0.9	-0.1
74494	00	V	100	23	0	0	3.7	0.2	0.7
74494	12	V	100	25	0	0	3.6	0.4	0.9
78016	00	V	100	1	0	0	8.4	1.0	8.4
78016	12	V	100	25	0	0	5.2	1.7	0.5

TABLE 13

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH: January 2001

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from selected radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from UKMO global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:500 hPa.
Element monitored		:VECTOR WIND in m s^{-1}
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:UBIAS,VBIAS:	Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.2

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	% REJ	RMS	UBIAS	VBIAS
DASAP3	12	V	500	2	0	0	3.4	-2.3	0.5
ELML7	00	V	500	6	0	0	5.1	-1.2	-1.2
ELML7	12	V	500	7	0	0	3.8	0.6	-1.3
FNOR	00	V	500	10	0	0	4.8	-0.7	0.4
FNOR	12	V	500	10	0	0	4.8	0.6	-0.3
FNOU	00	V	500	11	0	0	4.7	-0.7	-0.8
FNOU	12	V	500	10	0	0	4.1	-0.6	1.2
FNPB	00	V	500	8	0	0	4.2	-1.1	-2.0
FNPB	12	V	500	11	0	0	4.3	-1.5	-0.3
FNRS	00	V	500	10	0	0	5.6	-3.2	0.5
FNRS	12	V	500	12	0	0	4.5	-0.9	-0.1
LDWR	00	V	500	30	0	0	4.7	0.0	-0.1
LDWR	12	V	500	29	0	0	3.6	-0.6	-1.0
OVYA2	00	V	500	10	0	0	5.2	-0.1	2.5
OVYA2	12	V	500	13	0	0	4.7	0.6	1.3
OXTS2	00	V	500	11	0	0	6.5	-0.9	0.8
OXTS2	12	V	500	11	0	0	3.6	1.2	-0.5
SWJS	00	V	500	2	0	0	2.6	0.9	-1.4
SWJS	12	V	500	3	0	0	3.8	-0.9	-1.3
ZCBP6	00	V	500	4	0	0	4.6	-0.5	0.6
ZCBP6	12	V	500	2	0	0	4.5	-0.3	-2.3
03953	00	V	500	30	0	0	4.8	-2.1	0.0
03953	12	V	500	31	0	0	4.7	0.4	0.2
04018	00	V	500	29	0	3	6.3	0.3	-1.8
04018	12	V	500	30	0	0	3.9	1.6	1.1
04220	00	V	500	30	0	3	6.6	-0.5	0.7
04220	12	V	500	30	0	0	6.1	0.5	-1.0
04270	00	V	500	28	0	0	4.4	-0.3	0.1
04270	12	V	500	29	0	0	4.3	0.0	-0.6
04339	00	V	500	30	0	0	6.2	0.2	-0.5
04339	12	V	500	29	0	3	5.3	1.4	0.0
04360	00	V	500	29	0	0	3.6	-0.5	0.1
04360	12	V	500	30	0	0	3.7	0.5	0.7
08001	00	V	500	24	0	0	6.0	1.0	1.1
08001	12	V	500	26	0	0	5.4	2.5	-1.3
08508	00	V	500	18	0	0	4.7	-1.6	-1.2
08508	12	V	500	18	0	0	4.3	-1.5	-0.4
08522	12	V	500	30	0	0	5.0	-0.1	-1.3
08594	12	V	500	26	0	100	4.1	0.9	-0.5
60020	00	V	500	28	0	0	4.1	-0.6	-0.5
60020	12	V	500	28	0	0	4.1	-0.1	-0.6
71600	00	V	500	29	0	0	4.5	0.6	0.0
71600	12	V	500	30	0	0	6.4	0.6	1.0
72201	00	V	500	30	0	0	3.2	-0.2	-1.2
72201	12	V	500	31	0	0	3.5	-0.7	-0.2
72402	00	V	500	29	0	0	3.4	-0.3	-0.8
72402	12	V	500	31	0	0	3.8	0.7	1.3
74494	00	V	500	24	0	0	3.5	0.0	1.3
74494	12	V	500	27	0	0	4.2	-0.8	1.2
78016	00	V	500	1	0	0	10.1	9.3	-3.8
78016	12	V	500	28	0	0	4.5	0.0	1.0

APPENDIX I

1. The gross error limits for observation minus background differences of geopotential height in Tables 5, 10 and 11 are:-

Level (hPa)	Geopotential height (metres)
1000	100
850	100
700	100
500	150
400	175
300	200
250	225
200	250
150	275
100	300
70	375
50	400
30	450

The weighted RMS values used in Table 5,10 and 11 are calculated using the following weights:-

Level (hPa)	Weight
1000	3.70
850	3.40
700	2.90
500	2.20
400	1.90
300	1.60
250	1.50
200	1.37
150	1.19
100	1.00
70	0.87
50	0.80
30	0.64

2. The gross error limits for observation minus background differences of windspeed in Tables 6,12 and 13 are:-

Level (hPa)	Windspeed m s^{-1}
1000	35
850	35
700	40
500	45
400	50
300	60
250	60
200	50
150	50
100	45